

cttccctacg	gcgacgagcg	aatatgtcgg	tcacggcaat	gtgccaaage	ctccacggcc	2100
agtcggagtt	cttcctcgtc	tcgatgcttc	ccacatagag	caggtaacgc	tcaggcaagc	2160
atatacgtcc	ctcgtctctg	actcactctc	ctcggtagcc	tgtccaaggc	cggcgaacaa	2220
ccctgataga	cgacatcgat	ccgatcggca	ggcagtggaa	aaactccatc	acatcgcgct	2280
tggctctgctc	gcttatcgtc	atccccctgtc	ggcacaacgg	gcagcatggc	cgtatttgag	2340
ccgatacagc	agctgtccac	aggcttataa	tagtgcggtat	agcgaatgaa	gatcaagtcg	2400
tgatcggttac	caccgtggcg	atacccttgc	cgtatatacc	gagtggcaat	cgtggctcag	2460
accgtggaag	agatcgatgc	cctctatatg	cagtcgagga	cc		2502

(2) INFORMATION FOR SEQ ID NO:682

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3229 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3229

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:682

ggataggacg	ggacgatagc	acgaatgtat	tccgtgctcc	gctgcacaac	ttatgccaca	60
tgtngatacc	actaaggcct	ctatcctgct	cgatcaccgc	cgcacaagct	cgacagcggtg	120
gcgatgaccg	gtgtggactt	ggctctgacg	ggcacacgca	caacggacag	atctggccgt	180
ttacgatttt	gacccactgg	cttttgaaaa	atcatggggc	tatcttcgca	aagggcatac	240
gcagtctatg	tcagttcagg	agtaggagcg	gccggaccgg	ctattcgtgt	tttccggaga	300
gtgagatcgt	cattctgaat	gttcggtttg	cctccgaaaa	caaccgggtc	attagccttc	360
cgaaaaacga	acaaatacaa	ttaaccccaa	gaccaccacg	atggcagggt	cttgggggta	420
gtgttttttt	agcgatctat	acacggagtt	cttgccgcaa	catccttacg	ccttccgtgg	480
caggagcatg	atataccgaa	tgtcttgccg	ggaggtgctg	cgcacaggct	ttggatcgac	540
agatagatgg	ggcagttgcg	aggagcataa	ttcaacagtc	cggcagccga	taaacgttga	600
gagaggtgcc	gatgacaacg	agaatgtctg	cctgtgtacc	tcttcgatgg	ccggctctat	660
catcggaaca	gcttctccaa	accacaaata	aacggccgta	gctgacagcc	gtcgggtgcc	720
agatctccta	catcgcatcg	ggattggctg	gggtctacgg	atagagcaca	ctgtctgtgg	780
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ccaaaccaat	atggcctgca	ttcggtttgc	accggcatag	tcgcgtcggc	gtgcattgta	960
gaacttgaga	acgagggcag	attgcgccta	aacctatcga	tagaggccac	atcctcgacg	1020
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gcaaatgagt	ggggcgggtat	tcggattttc	tttcaataag	gcgcgaggat	tgatcacggt	2520
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tcttcccagt	cttgacaagc	tttggcgaca	atcccgtttg	gccaaaggtc	aggctcgattt	3120
ccttacctac	aaccacgaat	ttgtgatcaa	ggatagcagg	gtgccttcca	gttcacgaac	3180
attgtgcaga	cattttcggc	gataaagttc	agcaccgatt	cgtccagcc		3229

(2) INFORMATION FOR SEQ ID NO:683

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2749 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2749

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:683

gctccgagga	aagccaacag	ccctcctccc	ataccgcctg	cagctccagt	cccgggatat	60
ggactatata	ctgccccgta	tgccgggtga	taacggcacc	aaatgctgca	tcgaatcatt	120
caatcggggc	accatctcct	catccgcccc	ttctgaggag	caaaggcaaa	agcggcacct	180
tcggggcgcg	aaaaagattg	cgcacatcgc	aggccaccgt	aaaaagcgaa	tcggccaaag	240
ccggagtgcc	gaagagtcac	cgatgcgata	gacctccgac	agcaaaccgc	cgcaagggcc	300
atgccctccc	ctatatctct	cccatcccga	tcgtagaagc	gaagcccaat	gcctgtagca	360
tccccagtc	ggcatcggtg	gtggcgctgc	cacgatcccg	acgataaact	tacgacaacc	420
tcgatccaga	gcattcttga	tagctctccc	gttccgaacg	tggtagtctg	cataggattg	480
cgccggtctt	cggcacgaga	ggcagtcgcg	tgatgctcgc	catttcgatg	aaagccgctg	540
tccgtcagcg	gatataccat	aagaagcctc	gcgcatttcc	attagtggga	gtgtgcacga	600
acggctatgc	gctgcccac	tgtggcagct	atcagtaatc	ctgcatcccc	tctcccccat	660
cagctacggg	cagtaccatt	acttctcaat	cggacaggct	gcccgtagcg	cctcagcagc	720
tgcttctcct	gcctcacaga	ggagagacaa	cccttgaagg	agtctatggc	tatcacgata	780
ttctcattcc	gcatttagtt	tacaacaaaa	tccggaagca	ctgcaaagca	tccaacaaaa	840
attccaaaaa	ccaagagaaa	aaacgataga	caaactaact	cgatggctct	taggtttttg	900
ctctcatctt	gtaaaacctgt	atccggaaaa	gcaaattccg	gtatcagggtg	gagattgcta	960
tcggaaagga	ctctttaagt	catcaatttt	ttattgtgct	gttcgcaaaa	aaacagcgac	1020
actcagaata	ctttcgtata	tccatcgaaa	ggaagtcttc	ggctctgaca	cctccatccc	1080
gagaataaaa	gccgattggg	gcttgaagga	atgggaaaat	ttgtccaccc	gtctgtcctt	1140
ttctctgcat	tgcttttcac	ctcaatggca	acaacaaacc	tttcttgccg	aggacgaaat	1200
cgacttcatc	gtctcgttcg	cgccataaaa	tacctcgaaa	cgatgaacaa	aagcctgact	1260
gacgaggtag	gttcaatgcc	tgattcgaag	attcgcccc	aggacttgcg	atcaagcattc	1320
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gggaataact	gccttcctcc	ttgccatatc	ataaccaaac	tctgaagtcc	acaaagcaat	1440

ccgctttcat	ccaacagatt	gatatatccg	ccaaggtcac	cgtattaccg	gcattcttga	1500
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gtatggaacg	tatcatcgtc	ccactctttt	ttcacgactt	cactccaatt	acaatctttt	1920
gtatctcgtc	gatcacaaga	ataatgctct	cccactcctt	gcctccttca	ggctacggac	1980
agcagcccaa	caatcgga	ttccaagcag	ttcacagtcg	gaacattatc	ggctgagaag	2040
aactgatagg	gtgcatccag	tccttcagca	cctgcttgac	aaccgttgat	tttccgattt	2100
gacgagcccc	attacgactt	gaatgaatct	cctccgatct	ttaagacgat	ctgtaacaca	2160
tgatactctg	ctcttttata	catatccgca	cattttactc	agtaggtgag	tattttttact	2220
cagtgc aaat	ataataaaga	catttgattc	ataacaatct	cttacaagtc	aataaaggca	2280
atgtgattat	cccataaagg	gtggattatc	atgtattttc	caatagtaaa	tgcaaacacc	2340
tataaacaaa	aataccccga	gggataatcg	ctcgggggtg	gaagccaaca	gcccacctcc	2400
ctaccgcctg	cttctcctgc	ctcggcagag	gagagacaac	ccttgaagga	tctatggcta	2460
tcacgatctt	cttcattcca	cttccggctt	atttgcagcg	atagtcggca	gtccgcaagg	2520
atgcaagcat	gagaggaaaa	gccaaatcac	aaaagagcca	gtatgatccc	ataaggcatc	2580
caaagactct	tgagagaaagg	caacgccaat	agttcatctt	gatcttacga	acatccatat	2640
cgtagattcc	ttgtgcggac	ggctctcttc	catttttgct	acgcttcgtt	tgtatgctcg	2700
cgatacttcc	tttccagttg	caagtagaaa	gcattccacca	aggccatgc		2749

(2) INFORMATION FOR SEQ ID NO:684

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1167 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1167

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:684

gagacaaaat	aatcaccgca	ggcgggtatac	acggcaccat	acgcgaggtc	gcgaaaaaga	60
tttcttnntc	gaaatcgcca	atggcggtgaa	catccgcacg	ataaagggtc	tgtatatgta	120
tctgctcgcg	aagcggaaac	agacatgccca	acaagaaaga	ctaagctgca	taaaagcaat	180
ctatcggagg	aactgaagag	acgggtaggt	attacgtcca	ataacacttg	gcataaggca	240
cccccatctt	tcagttcctc	atcgttctcc	accaaattccg	ctaaagggaa	tgaactcaat	300
ctcctcaatg	ccgatcggaa	aaaggggaaa	agtatagaca	aggatccgct	ccccgttcac	360
gccgtgggag	gaacgtcctt	gtctttttcg	ctttgtggtt	ctctctgccg	ttttttgggt	420
tatgcagagt	ctgcaggatg	ttacaccact	tcatttttga	ttcccatctc	ctattccgag	480
ctgccgcggg	cataggagtc	tcaggcaggc	tgcccagacc	cttggacatt	atgctgaaaa	540
tcagggtatc	gtgcttctga	cctataagct	gaaggggttc	ctctccgataa	tatctcccca	600
tccaaagcgc	aattgcacaa	gaaaaagagc	atgcgacgaa	caaatgggat	ctgggtcgaa	660
tgctccaaaa	acaactggag	acctccccgac	cgttgacagc	atctcgcccc	aagacatcaa	720
agcgacattc	tacaccgcaa	aaagaaaacc	gtacccgtag	tcataaacgg	acaaaccgtc	780
cccaagaagg	attctacgcc	ttcgatccca	ttctctcgcc	gagcgaagtg	acctatatgg	840
aagtgcagaa	gcgttgggcg	gtatcgggtc	cgtgaatacg	gagagttttc	tatcgacgga	900
ttggagagcg	atttctccgg	tgacatagcg	atgccccgat	cgatgatatc	gttatcgatc	960
cgacaaatat	cagaatgcaa	tgctgttaga	gcaactaacg	gaacaaacgt	tcgaactgcc	1020
gatcataaca	agaatgtgcc	tgaaggcttc	ctccttcgtc	ctctaccggg	caaagtgtga	1080
tacagctcac	actncccaca	tcgcactaca	aagaagtatc	ggaagctatt	tgcaaacagc	1140
cgttttctat	ccgtcctctc	cggatttc				1167

(2) INFORMATION FOR SEQ ID NO:685

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 522 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...522

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:685

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gggcaaacac cattagcaga actaatgaga ttgtccggct tggtcgttgc ttcactacgt      60
aggtctcctt gtcgaagttt acgtatctga acttgaacca ctcaaactac cattgacaat      120
tateggcaca atctgaaatt tctcactagc gagatattca gtcacacctt ggcaatggca      180
cgcacaaggg gcacatgtcc aaaagacgat tggccaagaa gtcgtgtgtc ttgtttccgg      240
acatcggaaa ggagaggcta tatcggtcga ccacggcatt gcagtcgtcc tcttacagtc      300
tgcnaatgga ttctggttagc gacagcatca agagccgttt taacgcatta tcaacattgg      360
ctacgacata tactttgccc tctccggcct cgattgtgtc atatccaact tcaccttcat      420
atcgtcagga agccaggctc cccggtgaaa gtgttaccgg taatataagt atttcgccgg      480
attcgccctt actgatcgaa caacaaggag ggtaaagatt gg                          522

```

(2) INFORMATION FOR SEQ ID NO:686

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2762 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2762

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:686

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ggtagtactc tgcctttcca aggacctgcc ttttgcacag gctcgcttcg tggtgccgaa      60
ggtctggaca aggttatcca ccgtttcagc tttccgctcg actgctttga gaagggttat      120
ggtctgctga tgaccgatgg ccctttgaag gtctcttggc tcgtgccgtc gttgtagtgg      180
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tgaagtgcta tcgctgcact gaagtaattc cgttcaaata ccaaatattt tcgggctgtg      300
ttcaatctca ttggcacagc cccgattcca ttttcagtat ctacaaacaa acgttttcgat      360
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aggtcggaag gagcatgaaa taatgggtcg gaaagccttt agtatttggg cttatccgtt      480
ttttctgtcc aagacgaaaa gaatggagtg cttcatcctg cagtatcggg atgatcggat      540
agagcggtta tccataggac gagccagctc ttgatagata aaatcgtctc gaatcctata      600

```

tcggcagcat	cctgccgatt	gttgccatag	aaaatccatc	tatgcgtgcc	caatagatgg	660
ctccgaggca	catcggacac	ggctcgatga	agtataaatg	gtacatcccg	aaagatcgaa	720
agtgccgagc	cgcttcaagc	catacgaata	caattcactt	ctgcatgcgc	tgtgggggtca	780
ttgtgaggg	cacacgattg	ctcgctcgctg	caatgatctc	tccatctttt	acttcacagc	840
acccaaaggc	ccccctccat	tggcaacgct	ttcgtcggcc	aacggatcgc	ttcgcgcac	900
atctccttat	cctgttccgt	atgattcatt	gattgtgcat	gttcaattgt	ttgcttccga	960
cagggttgctg	gcttatgctt	gggagtagat	acagtttcat	tcagagtgat	tgccgtagga	1020
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tcggtttgag	cgagaggtcg	attttccatc	gtcacggagg	cgaatcacga	aagctttcac	1260
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cccactattg	tgacggagac	ggcatgcagc	agagccacct	gtcccacttc	gacaagcgcc	1620
gcatggtggt	ggcgatgagt	ctgccttcat	tgtcatgata	gacgaaacct	ccacttccat	1680
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tcgagatatg	ccccaatgga	tacgtacgg	cgatggtcag	acgacctatg	cgctccgagct	1800
ggtatttgct	cggttcatcc	tccgggatta	ctcaagcgta	actgacgatt	cgctcgcgag	1860
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aaaggcacgt	tgatcgcgca	tattctgcca	actccaaagg	tgtggaaagg	aaatcattcg	2400
atcgcatgtc	cagaaaattt	ggagattggt	cctggcattg	atcagccgta	gccgagctgg	2460
attacataag	gagcattgat	ctcctgtgtg	ccggccggct	aatggggatc	gatatcatcc	2520
tcttgtcacg	cggagaatac	tgccaagatt	atgaggggcg	gaactattga	atgaggtaaa	2580
gagcttggtg	ttgtcgacag	ataataacaa	tcgacgatta	catcgggatt	gttcagcgtc	2640
tccttcttcc	catggcactc	agatatttgc	ccacttcttt	gtagacagct	atatcatctc	2700
ctcgttgctg	ggcgaagaag	ctgcgaaaga	gtatgtacgc	agatggtaaa	gtccgctttg	2760
gt						2762

(2) INFORMATION FOR SEQ ID NO:687

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 573 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...573

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:687

magttgctgt	gcgcaataat	gagggtagga	tgggtgctcat	caatggcaag	agatttggttc	60
gctgcttatac	tattattcca	tcatgcgtcg	caaggaatgg	gcgatttgca	tcctgatgat	120
tatatcgtca	agacgattgt	gactacgaat	tgatccgcga	tatagcgaag	aaagagcatg	180
tgagcatgtt	cgattgtaca	ccggtttcaa	atggatagca	gccgtaataa	gagagaatga	240
aggtctcgcc	gctatatagg	aggtggagag	gagagttatg	gatttttgtg	gggagacttt	300
attcgagaca	agagttcgg	atctgcttgt	gcactcttct	gtgaatggca	gcttgggctt	360

tggatcgagg	catgagtgtc	tatcgactca	tcgcagcatc	tatttggaat	acggtcttta	420
ctacgaaaag	ggacttagtg	tntgcgtaaa	ggcaaatccg	gagcagaaga	gatagaagcc	480
atgatgagaa	ttatcgtag	tatgcacctg	tagaactcgg	agctcgccctg	tgcangaaaa	540
tggactatgc	ttctctcgaa	ggaaaagatt	cac			573

(2) INFORMATION FOR SEQ ID NO:688

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1075 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1075

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:688

cgacgtagct	tgtgtgaatg	gcgatttctt	gtacaacgta	ccatgtttcc	agaagccctg	60
atgcgtgcac	aaaaagatgg	taaaccgaca	ggtactgtgc	tatcatagcg	tctacgatca	120
accagtcttg	ggctttctct	atgcgcggca	ggatgagatg	aacgaaattc	tgtgcgaaaa	180
acacccgaac	aacatcagcg	tactttcgga	ggtgtcacca	tgaacgggat	gtttgctatg	240
gtggaaaagta	taaaaaggat	ggtgagaaga	tgctcgacac	atggactgta	ttcgcgaccc	300
ctcgtgtctc	gttcgtacac	ttgtcccgc	caaaatgcag	gttcggctcc	ggcaaatatc	360
tctgcctctg	cacagacatt	cgaagtagct	tggactataa	cgggtgctatt	gctacgctct	420
ctgacgatgg	tgatattggt	gcactgctat	cgtgaaagac	ggtaaggcta	tcatacaatt	480
aaatgagagt	tcgctgatga	aacgaacttg	acgctcaccg	tagtaggata	caataaggta	540
ctgtgataaaa	ggatgtgaaa	gtggaaggta	catctattgc	cgacgtagca	atgataagcc	600
ttatactgta	gctgtatcag	gtaagacgat	aactgtaaaa	gtcctgctgc	cgggctgacg	660
atcttcgata	tgaacggccg	tcgtgtgcta	ctgctaaaaa	ccgcatggta	ttcgaagcac	720
aaaacggcgt	gtatgcgttc	gcacgcgtac	tgaaggcaag	acgtatacag	aaaagggttat	780
agtgagtaat	tcacactgca	attctctaat	aagggtctgtg	ccgaggaatc	catcggcaca	840
gccctttttg	aattattggc	actacgcaa	gagactgttg	agaatcaggc	gagaaaagag	900
gatgctaaag	gtcgtaaaata	acggctcaaa	ccaatggccc	gttcactctca	taccatggtg	960
cgcaagggct	acagaccata	acttgagatt	atgtgccata	gtgcttcgtt	ttaggtggag	1020
atatggtctt	tattgaggaa	aaatattctg	gttatgagag	agaaatcttt	ttttg	1075

(2) INFORMATION FOR SEQ ID NO:689

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2969 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...2969

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:689

cgagggaaaa	cagatccaac	accttacgaa	tcagcaatcg	gatatgccgc	ccgtaccggt	60
agctgtcttc	ctcataccct	ttgcggagga	ggcgtgatcc	tccctcatca	cctgttcgta	120
ttcgaatcct	cgtcccacag	cccagcgacc	aagcggtgca	gacgaccgcg	atcgcccgta	180
tcctttatgc	ttcgaatttg	cgctccaaga	gacgcggcag	gttatcctct	atcttatctt	240
ctccccctcc	aaatccaata	aggtcgaacc	gatgatcgaa	tccggaatat	gccgttgacc	300
agttccaaag	cgatgcgctt	gggaccccag	ccattgaatc	ggttttgtca	cgagcataag	360
cacgggcaaa	acgatcctca	tcaatgaacc	gacttccaca	agccgctgca	gcagccgctc	420
tatcattagc	tcgtctgtcc	cgctgtcgc	agtttggtcg	ccacttctga	tctgcaatgt	480
tccgtacggg	gcagtaggct	tgcattcgat	tcagtagttc	ctcctctgtc	ttcatgcttg	540
ttagcgggta	aatatttttg	cgagagaaaa	cggctcttgc	cggagaggcc	gtgtgcaatc	600
ggacttcaca	ccatcccact	ttggccgaaa	atacttccat	gtggcttcgg	ccagcagcgg	660
attcagctcc	acataaagcc	gtccgcggag	cgtagtctac	cgctgccgga	aaggttggca	720
atggctttgt	agaaaggaga	ggatcctcct	cgggcgcaaa	gagagccaag	gccggttcac	780
gtccagcaca	tgatacgcca	tatcggcact	ttccgcaggc	atgatgtarg	gagattgctg	840
acgataatgt	ccacgggggg	gagtacgtcc	caacgattat	cggagaaaga	atatcgccct	900
cgaagaaaaa	tatccggctg	tcttctccga	cttggtacga	gccgtagcta	aagcatcggg	960
tgaaatatcc	atcgcccata	tttggtctga	agttctcgtg	ccaatgtgat	ggccagacat	1020
ccgtcgccct	gccgacatcg	agcagacaaa	gcgaagccgc	cgcaggccctc	tcctttcgag	1080
gatcaactcc	accagttcct	ccgtctcagg	acggggaatc	agcacagagg	atttaccgca	1140
aattcatacc	cgaagaaagg	cgcatgtccc	acggcaactg	tagcgggaatt	cctgtcttca	1200
tacgatccag	atagcgagat	agagctgcga	tgcctcggtc	gataaaaagcg	tatctttgtc	1260
tgcaagcaaa	agtgggagcg	gcttagggccg	gttgcttcgg	tcagtagccc	tcgcatgatg	1320
ctggcaattc	atccttgctg	tatcgaccgt	tcagtgtcga	ttcgattcgc	tgtgagcttc	1380
gttaagcgta	atcatcagaa	acaaaattag	caattaggtg	tactcccgat	cctctgtata	1440
tgcgcgctgc	catcgaatta	gcacagaatg	cgaagggttc	acctctccca	atccgcttgt	1500
cggagcagtc	cttgtggcta	tgggcgtatc	atcgggtgagg	gctaccacca	ctgtgccggc	1560
atgccccagc	cgaagtcatc	gccataaact	ctgtgcgaga	cagggctttg	ctcagagaag	1620
taccctctat	gtcagtctgg	agccttgctc	tcattatggc	aaaacgctcc	ctgtgccgag	1680
ctgatccctc	gggagggcct	ccctcatgaa	gtggtgccat	gctcgatcct	ttcccatccg	1740
tttcaggaag	aggcatcaag	atgtgcgtga	cgcaggcgta	tcgggtccaag	tgggactact	1800
tgacaggaag	gccaggagct	gaatcggcat	tccctcacag	cccaacggca	acaccgtccc	1860
tagtcacact	caaatggcca	gagagtgcg	acggattcat	tgacgcactg	ccgacnatgc	1920
ctccaccctc	cctgtcaggc	tgagtacacc	tctgaccaca	gctttgtgca	ccatagacga	1980
atgatacacg	atgccatatt	ggtgggggtc	gtaccgctct	tttggaacaat	ccctctctga	2040
cggttcggca	ttggtacgcc	gaaatccgct	acgtgtggtc	acagatcgcc	atctggctct	2100
cccacgcacc	tcaccctctt	cgatggcagt	gtgcccacac	tggctctttac	cgaaaagaac	2160
aaccctccgg	ctatccctcc	gctgtctctt	tcgttcggat	cgatcctccc	gccctcccg	2220
ggagcagatg	ctggccgaac	tgacgcctcg	cggctacagt	cgctgttagt	ggagggaggt	2280
gcctgtatac	tccgatcttt	catgacagcg	gtctgtacga	tgatgtacgt	atcgaacaca	2340
gcaccattat	ctaaacgagg	gagttcgtgc	tcctcacctt	ccctcttact	gaattttacg	2400
cctgcaatcg	atggaattgc	ggcgcgtatt	ctgcgagatt	taggcgcgta	attacttcgt	2460
ttacgcgcga	gaaatttttc	attcccgaac	caaaacgaaa	aaatcccgcg	ccacgttttc	2520
tcgccccatg	ccccatgcgt	ttttggctga	gaactgctat	acgacggcag	agccgtcgga	2580
tgatggaaac	agatcgtcgc	agtcaaatca	cagagtctct	tacactacgt	aatctccgta	2640
aagtccaatc	gggtcaaaga	cctgttttct	tcataggact	ttccgcaaat	gtgcaggcct	2700
ttgcttttag	ggtattaccc	ccacgcagca	tcgagtgttt	taggggaaaa	gtccgctttg	2760
tttcgtactt	ttgttcacac	aaatcgatca	taatagaaga	accccttatc	attatgtaca	2820
gaacaaatac	ctgtggcgag	ttcgcccttc	tcattctgcaa	caaaccgtta	ccctctgcgg	2880
ttgggtacag	ccgtgcgcgc	catgggcggc	atgacctttg	tagatctgcg	ccaccgttac	2940
gtactacgca	gttggttttc	aacccgtag				2969

(2) INFORMATION FOR SEQ ID NO:690

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 723 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...723

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:690

cccaatccgt	cgctccgtta	agaatagagt	tgatctgccc	catcggtaga	acctgtactt	60
ccgtgtcgaa	atcgaaattc	ttgataaaga	tgttattgct	ctgacgaacg	ctaccatccg	120
gccatcgggg	ctgaatgtag	ggatcatact	ttgccgacat	gctcgctcag	tggtttttacc	180
aaattgcggc	gaacatatag	tcgtagacgg	cagcacgata	cgaatgccga	tagatgctct	240
ccataccgta	aagagcaaaa	tatgatgtcc	ggtactgctt	acctcgtagt	tctgatttgt	300
ttaaaccggc	attcgcggtg	tcgttcgaca	ctgaagagcg	tattaccgcc	ttgccggagg	360
cataattgta	gcgaatgata	gccgttcgct	caggttcatc	tccgtatagt	gttctccatc	420
cggcatggag	cgtattccac	tctgcactg	cgagcataaa	acattccgct	cgtgatttct	480
ttcaaattcta	gggtttgttc	cccgctctgag	ccatggcaca	catggttacg	atgccaaagt	540
cagaattatt	accggtcttt	tcataagaaa	gtgtattgta	tcttctttta	gtggttttatt	600
gcttagcggt	tcaatgcacg	atccatctct	cggcgatatc	tcgctctttg	atggatgcac	660
gtttgtcata	attgnntttt	ccctcgggcca	atccgatttg	cagcttggcc	aatccctttc	720
atg						723

(2) INFORMATION FOR SEQ ID NO:691

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 603 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...603

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:691

ggaacttcgt	ctcctgatcg	atagcggacg	ttatgacagg	gctttgccct	agcccaacag	60
ttgggtggcca	aaaatccaaa	gcatgccgat	aataactaat	gctagggctt	nttctgtaca	120
nggctgaacg	ctacgaagaa	gctattgtcc	ccttcgggtg	gccgtaagcc	ggcggagtga	180
tgcttatgag	atgttgcgga	tgcttatgcc	aaagagtatt	tcttctccga	agctcttgct	240
gcactgaaaa	acagaaggtt	actcttgatg	agaaaaaaca	ggaaacagtc	tccaagatgc	300
cggaaatagac	cgtatgcgac	gagctgtgcg	cttactggac	agaccgaatg	ggtggagggtg	360
atagacagcg	tacggacgaa	taaagccgat	ctctgtcggc	ctacaatctc	atagccgata	420
acggtcggct	cgaatgggtg	aaggaaacca	aggggaggcg	acttcttttg	tcaatgggcg	480
cggcgaccat	ccatcatgac	ggagaaaggt	gaggatggag	tttncagcct	gcatgaagnn	540
nncggatcgg	tggcaaatgg	ggcaatgcga	tccccctcga	aaaactcatt	cccgaattcaa	600
tga						603

(2) INFORMATION FOR SEQ ID NO:692

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 595 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...595
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:692

acagagggag	ttcggaaacc	tctccttcgt	tctccatttg	catcttggca	tgagagcata	60
taagagagtt	tgagctatgg	ccgtcggatg	ttttttgctt	ttcctgctat	cgggtgttgg	120
aacataagat	cccattgagcc	aagctcttgg	tggtatctcc	actttttag	tccactatgc	180
gccgacattc	ctcatctaact	catcaatgcg	gtctatgatt	ccgtgtaacc	gaacccggct	240
accatgctaa	gggagaagct	gcctttgact	ctgcgctccg	agtctatgta	gcgaagggag	300
ccaatgattt	gtatgctcc	aagatccgcc	gtacatactt	ctcatcatga	tgcaataaaag	360
atgattcaat	cccgcataag	ctccctgtgt	atggccgatc	ggagatattc	ttccgtgtat	420
gcttgacctta	ctatcctcgc	gtagttgcac	tcttcggatc	caaccaccga	gataaaatat	480
ccgaagaaac	atcccaccac	cgcaacaagg	ctttagatgc	aacttcatgg	aacgatgcac	540
acggaccgaa	atcattggcg	gccatcagtt	catcggaagc	attctctccg	tatcc	595

(2) INFORMATION FOR SEQ ID NO:693

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 2436 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...2436
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:693

ttgcaaaaagg	agctattcaa	aaaaacacga	accggaaatg	ctccgattgg	gcgcgtattc	60
cctgaaaaaag	tggcgcgaga	attttttcgt	tgtggcgtag	aattttttgc	ttcccacgcc	120
aaaataaaaaa	agtttacgaa	ccgcgtttga	ggagtagcaa	acgggaaaaat	tttggagcct	180
aaaccaattc	ggttatatag	tacatgttcc	tgatcttctt	ttctgaaaag	gcttgatagg	240
attgaggaac	gttttctttt	ttcttttgct	ttgattcggc	tgttagtga	caataaaaaga	300
gaaaaagaag	aagcctcttg	ccgagacaac	cgagcggttc	ttgcagaggc	ttccttatgt	360
attggtgcaa	agtgcacca	tgaggttctt	aaaccgagat	tctacaatat	cccagtcac	420
gatactccaa	agatctttga	gtggtcggca	cgacgattct	ggtaagtcag	ataatatgcg	480
tgctcccata	gtcgaatccg	agcaaaggat	tcaacccttt	gcgcacggga	ttgccggcat	540
gggttccttc	tcgatggaca	gtttgccatt	ggcatcggat	gcaagccaac	ccagcccga	600
ccaaagaggg	tggtaccggc	tgtgttgaa	tcctcttgaa	cttttcgaat	gagccgaatt	660
gtttgtcgat	agcttcccc	agtttgctt	cggtgctcct	cccttgcccg	gacggaactg	720
agtgaatatag	agatttggtt	gagggtttgg	ccggcattgt	tgaagatacc	gccttcgctc	780
tttttacgat	ggtattcaag	tcagcgtttt	caaattccgt	gccgatgatg	agctattgag	840
gttggtccaca	taggtcttca	ggtgcttacc	gtgggtggaat	tactgtttc	tttgcgtgata	900
acaggagcca	gtgcatcgac	cgcataaggc	aggaaatgag	ttcgtgagtc	ataacgtctg	960

atTTTTattg	taattaagtc	tttaataatt	tgtatcggag	cagtgtaaaa	ccgacaccga	1020
caatTTTTta	tcattataag	aacatgatga	acggaaaaag	gttcgaatct	tggctgtaaa	1080
accgattcat	tccatgacga	aaagatagtt	gctctcatcc	gaaagctcgg	ccggaagata	1140
aaaccttcgg	gcgaaaagag	ttgcatctct	tccacaggcg	gcacggcgcg	gtgaggaggt	1200
gggctgtcat	cagtcgcgct	gccatttggt	atagatcacg	atctgtttga	gacctccatc	1260
gggctgtggt	acttgaagag	gggtgtcact	acccgtacgg	cttgttctac	tcgtttccag	1320
tcgatagcat	tttcatttct	tcactggcca	gaaaacatag	ctcaccaccc	tttctcgtac	1380
cttttcgata	agaaaaatccg	taagatacgg	tcgccagaag	tgaatacttc	atcttcgacg	1440
ggtgccccca	gatgggcaaa	tccttccatc	tgtatggacg	aatcatgtca	ctcggctcgca	1500
aaagaccgta	gaggaacgag	tgataagaag	atgttcggag	gcatagagcc	aatcgctcagc	1560
attgaaatgg	caggagcaag	cttcttgaaa	accatacccg	tataagccaa	tgctgccgag	1620
cagtgggtga	atcgctctcg	aagaagtgtc	gccagcgctg	gtgattttct	ctgccaaact	1680
tctattgata	cggagtagtc	gggatagtgc	ctttaaactgc	aggaagatgc	agctaaagca	1740
atctttgtgg	tctgtctcatc	gaagtcgncg	aagtggtcgt	caaagtgtgat	ggcaaacgct	1800
tcggaatacc	gatgtcttgg	cacatgaaag	gagtatgagc	ataaggcttg	atcctgatga	1860
caaaaagaag	aggaagcctc	cgtctgtata	gtgatcgggtg	ggcttctctc	cacttcgttt	1920
tttgttactt	ggtggttttg	gacaaaatgt	ctttcatcag	acatcgaaat	actctccgcg	1980
ggtgagcaca	ccgtcctgta	cggctactat	tccacttcgc	cacgggctgc	catcacaccg	2040
tcttctctga	taatgtccgc	atgaaaatga	gtttggggcc	tttcttgtgg	caggtcagac	2100
agctacgaag	cgatcgccgc	tacgcaagga	ctggttgaaac	gttatggtca	ctttgtaacg	2160
aaagcatcaa	gaccttttct	gtgcatttgt	ccgaaattat	ctccgggctt	tcccagaatt	2220
catggcgggg	gtgctccata	tagcgctgat	agttctgttg	tttaccacac	cctgcaagtc	2280
gcattcatag	tctctcacct	tcagtcgagg	gagaacaggt	attctttctc	tttcataatca	2340
ttggggtttg	tcgggtttgag	aggtgataat	tcgctctcgg	tccctacatc	ttattcttct	2400
ctttgtcgaa	ccggtagagc	ttgtccgaag	gacgca			2436

(2) INFORMATION FOR SEQ ID NO:694

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3362 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3362

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:694

ggctcaagag	attctggcca	agatggataa	cagcctgccg	cgtctggcca	atgcgacatg	60
acaagagctg	accggtagct	tccgaggtat	gggaccggaa	aagcagtcac	cgtgatggca	120
gcaatggaac	tgtcccgccg	tatccctcgc	aagagatgcc	ccgcagagaa	tccattaccg	180
atagtcgaat	ggcctacgaa	ctataagccc	atthctcaca	gacctgccgc	aggaagaaat	240
gtggggttac	tcctcaacca	aagcggaaag	ataatcagca	tggagaacct	tagcgaggag	300
gtgtatcgga	gacttcggcc	gatgtccgct	tgatcatgca	caagccgtct	ctcatcttgc	360
ctcggcaatc	attctggcac	acaatcatcc	ttaggaacgg	tacgcccagg	tgaacaggat	420
attcagctta	ctcaaagggt	gaaaaggctg	ccacattgct	cggatttcga	ctgaacgacc	480
atctgatcat	ggtgacgatg	gggcataatt	cagtttcgct	gacgaaggcc	ttctctgatt	540
ttctctgaat	ccatacaagt	aaatagagag	tcggactctt	tcttcttgtt	gaaaccgatg	600
agaaatcaac	caccggaaca	aaaaagccgg	gtcatccttt	atatcgccgc	atagcaagag	660
taccgggtgt	cgcataggcg	acatttaggc	agatagcagc	ttctactttt	gtgtcatcaa	720
agaacaatga	tcgataacat	aagaaggaga	ctcgacaatg	gaaaagaaaa	tgttttgcta	780
tcaagccagg	aaacagcccg	caataaggga	tgtatcctca	aaggggtatg	cggaaggact	840
ttagtacagc	taatctgatg	gatttgctcg	tctttaacct	caaggatttg	ccatcataat	900
gacttctatg	aggcgtgccg	gagtgaagac	cattaccgaa	aggctgacaa	ggcgatcatg	960
gaatctctat	ttgccacaat	accaatgcc	acttcgacta	ctcttccata	gcaaacgctg	1020
tagagaaaag	ttcgcaactca	aagcgggaatt	gtacagtttg	gcttttactc	aaggcataag	1080

cttccccgaaa	atgaagcagt	gacgatgcag	ggaaaagccgg	aagaatagat	cggttggctc	1140
tcagtgtagg	tattctaaga	gagacagacg	aagatgacgt	tctctcaaag	agctgacgat	1200
ctatggactc	aaaggatttg	cagccatgcg	gagcatgagg	atcgactcgg	ctacgtggat	1260
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tcggttcgcg	cccgggtatc	cttatcagcg	tcatgatctg	aaagatatgg	agatgctgct	1500
cgagcaaa	gaaggaaacag	aatagatgtg	tacacacacg	gtgaaatgct	accggccaac	1560
tattatccaa	attcaaaaaa	tacaaccact	tcttcggcaa	ttacggcaat	gcatggtgaa	1620
acagcgtgag	gagttcgaaa	ccttcaacgg	ccctatcctt	ttcacccaaa	ctgtatcgtc	1680
ccccctaagg	ccaatgcttc	ctacaaggat	cgggttttac	caccaacgct	acgggctatc	1740
cgggattcaa	gtacatcgag	agcgtcagca	cgggcgcaag	gacttcagcg	aaatcattgc	1800
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gccacatca	ggtattgagc	atcgccgaca	aagtagtgga	ggctgtcagc	atggagcgat	1920
ccgcaagttt	gtagtgatga	gcggttgatg	cggccggcag	gtgggcgcaa	ttattacacg	1980
gagtttgccg	aagctcttcc	ttccgatacg	ttatccttac	atcgggatgc	gccaagttcc	2040
gatacaacaa	attgcagctg	gcgacatttg	gggcatccct	cgcgttctcg	atgccggaca	2100
gtgtaataca	gttattcgct	ggcggtaatt	gccctgaagc	tgaaagaagt	aatgggttgg	2160
atgacatcaa	caaactaccg	atcgtctaca	acattgcatg	gtacgacaga	aagctgtcat	2220
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gtacggtcga	agagatatcc	ggacgctgat	cgcataagaa	taagaagtgg	tgtgcaagtg	2400
ataccttaag	ctttctcgga	aaagccggaa	ctgcattggg	ttattcctcc	tcttcttgag	2460
gtatagacac	aaaagtatta	aatactctgt	gaaaagcttg	taagcttttc	acagagtact	2520
tagaaccatt	tcgatgaata	gttaaaacat	ttcgcggaaa	gcttaagagc	ttttgccaga	2580
atagatccta	atctttctcg	aaaagtggct	aatcaaacgt	gagttcgatg	taagcgatat	2640
ggtgccactc	tctcttggtg	ggatatggac	tataatcgaa	tcagaaaatg	aaaggaaaaa	2700
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aatacgtgga	caaacagcat	attgcatatt	ttctcagatc	gaatccgcat	tgttttatag	2820
ccattcggaa	catacgccga	aaggggtcga	gctacgccc	acagcgactc	gggctacgcc	2880
gtagagcgta	cgagctgcgc	tctacggctc	ttcaagctac	gctgtagggc	tcaccgcgcc	2940
ggccctacgg	ctcagctcgg	ccacatctac	ggctcacgga	gcggaactca	cggctcggct	3000
cgctacgctg	tagagcgtag	ctcgccgagc	tctacagcta	gctcgaagag	ccgtatggga	3060
tagcccgtaa	tcctctacgg	aataccgcat	ctgccttggt	gtatagccca	tcttccgggtg	3120
cggactgcaa	cattcgtaaa	aagcaatccg	aatttcaatg	ttgggtccgat	ccgggcagaa	3180
gcaggttgcc	ccctatacaa	ttgcctgaac	ggaacaacct	ataactccca	agatttagtg	3240
tgtaacccgc	taactcggga	acgaatacat	tggcgtttct	taccggaact	gacgttaatc	3300
aatgncgcaa	gggacatcag	caaaaaataa	acccgaaggt	tttgcggaac	tttcgggatc	3360
tc						3362

(2) INFORMATION FOR SEQ ID NO:695

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 557 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...557

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:695

tgcgctatgt	aatggagcag	attctctttg	agttgtgagc	gcagttccct	atttcttcgg	60
acgggatttg	ctctattatt	tcccaagcgg	attcttcacc	tgacggctga	gaaaatccgt	120
gccaaagatgc	cgttcataga	acctctgctc	tccggagaag	cccaggctcg	aaggtgtacg	180
ccattggtga	catgtctaca	tgcagctctt	cggcaagaa	gccggggccat	acgggagcga	240

acatcttcgc	gagactactc	catgcagata	gctgactcca	ttggcctcct	gacagtgttg	300
agtgc aaaga	cactcatgga	gaacttttcg	ttcgagcccc	gtgcgttcgt	cccatgtcga	360
tgaactcctg	ccagctgatg	ccaagtctgc	gagaaaatgt	cccatgtaac	gccccaaaag	420
ctcttcacgc	aagtagtcat	gcctgcccgt	acaggggtgt	gaaccgtgta	gagcgaggag	480
gaacgaacag	ttcaanggca	atatcgaaac	tcaatccctt	tggttcacat	agtcnggccg	540
acgttgagca	ttgatca					557

(2) INFORMATION FOR SEQ ID NO:696

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3301 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3301

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:696

caaagatacg	gtccatcgct	tgggtgcatga	agaagaagat	ggccttcccc	ccttattata	60
gatgtatatg	gacatacggc	ctnatgcagg	cacacagcta	ggtatgccnc	cacgcacgan	120
cggatatagc	gaaggctctt	atagecgagac	tgcaggcttg	gtagatgccg	tttattacaa	180
gtcggacagt	actctacatt	caaagccgga	ctggaatcgg	ccgatggctt	cctgatcggg	240
tcagccaagc	cgaagcagag	tacgaaaacg	gacttctctt	cctgcccgcg	tggacaaagg	300
acagaagacg	gggttcttta	tcgaccagcg	agagaacagg	gcctgctgga	ggagtatgcc	360
tccggacgta	agggtctcaa	tatgttctgc	taagcgggtg	tttctccctg	tatgcaatga	420
gaggaggagc	atacaaggta	cctcggtgga	tagctcggcc	agagccgtgc	atctgttgga	480
gaaaaatatg	cactgaattt	tgcgggagac	gatcgctcag	aatcttatgc	cgccgatgct	540
tccatttctt	tgacgagatg	gctgtcggag	cttatgatct	gatcgtagcg	atccaccggc	600
ttttgccaaa	catcgcaaag	tgtctgcgaa	tgcgctgtag	gttaccgcaa	actgaatgcg	660
gtagcttttc	gcaagattgc	tccggggggcg	tgtctcttcac	cttcagctgt	tcgcaagcgg	720
tcagtcggga	ggaatccggt	tggcgggtctt	taccgcagca	gcacgcggcg	gcagaaaagg	780
gcgatactgc	atcagcttac	ccaacctgcc	gatcacccca	tcaacatcta	tcaccggaag	840
gcgaatacct	gaaagggctt	ggtctctacg	tagaataact	actcgaggaa	taaaagtccc	900
ggccctatgc	ctcatgccgt	ccttgngggg	ataaaggatc	aatggtaacg	atcgtaaagc	960
cgctccaatt	cgctgacaa	cgaagccgat	cgaaccaact	attgagactg	tcctgcaagg	1020
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tccaacgcag	ggaggagtgt	ccccagcttc	ttagcttcat	gttgggttcag	acggtcagat	1140
cgatgtcgtc	cgatgccacc	atcatggcca	actgcttgca	gaataagtgg	gatcggttcg	1200
tatatatata	ctatccccga	tttcccggac	agggtgttga	cgaacaacct	cgccggagag	1260
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acggtgtccg	ttacagccgt	cagcggaatg	tcctgtgcaa	tatgtcgcac	gcaccccgtc	1440
gcaacctttc	aaggctctct	ttccaattct	ttccagaccg	atttctatcc	gaatgccact	1500
gatttccgat	aaacgcagctc	tacatcgtaa	acaaaaccgg	cggtggaatc	ctgtcccaca	1560
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ataatcacgc	aacgaatcga	cagcgctccc	accggcagcc	cctcctcacc	acagtggcgc	1680
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tcattttccat	ttattttattg	aagtgatggc	aatacccata	cgcagaccac	gaggggttga	1800
cggcgtatgc	accaagagaa	acgcttgcta	tccatgaaaag	cctcagccag	attgtacatt	1860
tcaagaagaa	acgtgagcgc	ttgaggtgga	tattccacata	agcattcatc	aagggaaaga	1920
ccctcccacc	tttatctctt	gttgcggtgg	gaattgcctg	cggcggttgc	anaatacgga	1980
gcatagtagg	aggaatgaat	gcgagcatca	ctcccgtctg	tatacgcatc	accttgggtac	2040
tgctcggcag	acggaagtca	aatagagatt	gccataagcc	gccagcttcg	gtaaaggcaa	2100
agccgtagggt	tgctacttgt	ttgataagcc	gcttccactt	cccatcccaa	agcaccatc	2160
ggtaggcatg	tgctatccgc	ccttcgagga	cttgtatggg	agaaggacct	gttgggggaa	2220

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agccgtatgg tcgaaatata tatagttctt gagctagcgg attgcaacgt caaggtcgta 2280
ccccagtcct tcagacgaag agaccaccca tctgagttgc tggatgaaat cgaacgattc 2340
gtcccaccag tgacagtacc atgatgatga cgcagaaaag agcccggacg agtattgaga 2400
attgccccca agcttccatt tccgtcttcc gacgaaggag atcgaacgct tacttaatcg 2460
tcctctgagt ttgaatgctc cggcatcgct cccgacgacg aaagctctcc atcggctgca 2520
aagttgagat atttcccccc tcgtcggcga tctctcccc gacataagtg ctgaactccc 2580
tgtccgtagg ggggtacacga ctactgaatc ttgtagcgta taaaacctat tctccaacct 2640
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gcgtattgtg gtactcttcc atacgagtgg tgcgttcgag cagctgatca tctctccggc 2760
atcattcagt cgtttgataa acagattggg ataatcgaat tgtccaaagg attcttgacc 2820
ttgaagcgac ggcgactttt ggataattga aagtgtggga aatactacc acgggcacga 2880
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ccctcacgat agaaaccgag gttgtagcga tgggtcagac gagccgttct tgccgaagcg 3000
aattgaacat attattgccg ggaaacttca ccggaatacc gtcgatacga attcgttcgt 3060
tccattggca aaattaccg gatggatacg tagtcatcat tcgtaatccc cccattctcc 3120
gtcatcagat agtaatggtg cccacataag cataggcttc gtaacggtcg gaacggtagc 3180
tgccgagaaa cggtaggaga tggctttcgt cttgttggag ttgtagaaac cgttctgtag 3240
atataatcca catcgttacc aatgttgact cgcttgcccta tatcaaagcc aaagtagaac 3300
g

```

(2) INFORMATION FOR SEQ ID NO:697

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 280 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...280

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:697

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ttgccgctat gaaaggactg gcctctgtcc ttgaggctga agtactccgg aatagcacccg 60
ataaatatcga ttgccacgaa tagaatcacg aaggagccat gatctctttc aggtcgataa 120
ggctcaaate ttgtaatact ttgtctaaaa atccatcggt tctgatttgt ttgatagtta 180
aggttgaag gtccggtggt tgtcacgacg ttgacagtcg caaaattaac gtttttcgcc 240
ctatcaaaga taaccatcgg cgaaaaaagg tactgccggc 280

```

(2) INFORMATION FOR SEQ ID NO:698

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 623 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...623

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:698

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gtactcagcc ccgtcgtaca ggaaccgaga aaatgggtgca acgtacagcg gacgacctgc      60
agggcgttgca actcaaaaga gaccggctgg aagaggaacc tgtaaacggg acaagtcgag      120
agcctatattg gtggatgacg aagcgtgaat aacaagatcg aagagatggg ttttatcggc      180
ccggaagatg cgattacctg gccggcatgt atgccgaacg tacggcggtc aacgccaagc      240
gctgggtata aaaaagggtt atcaactgtt ggaactgctc tttcatgccg tcagctgggc      300
atcgacacgc tccgcacatt ctttctgata gtgctgtcca tccggggccg atcgtgttcg      360
gtatcgccgt atgggacgca ctacgaggat cgtgacagcc tggttcagcc gctacatctc      420
cgtctatctc tggctgccgg tagcagtatt ctgacagcac tgctcacgaa gatacagatc      480
ctgatgctca caaggagatt gccagttgc aagacgtgaa ctatatgccg gattcgggaa      540
ctggtactac atcgtcttct tcctgatcgg cattctcggg ttcttcaggt accgactggt      600
tcgggatgga tcatcgaagc ggg                                     623

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(2) INFORMATION FOR SEQ ID NO:699

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 718 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...718

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:699

```

gtggaaggat atcagaagat tgtcaaatga tttctttgat gatcggaatg cgttctgtcc      60
gatattgcaa tcaagcaata tgaatttgca ggaccacgag cttacttcaa ttagcggatc      120
acagagcgag tgcaaaaggaa gagtcaaatt catcccgat ccgattgctt tttcttatac      180
ctttcctgaa aagtggaaaa aagacctgtt caaaagctgg tagaaaagca ttggagagac      240
gaactctttt agtacgagca cccactgggt ctggaaaaaac ggatgcagca ctctgtgggc      300
ttctcatcaa atcaaacaca gaaaagcaga ccgcttgatt attctatgcc cactcgtttt      360
acaacaaatg cactagctct aagcgtatct tcaccctttc ttctacaggc ctgtatcatt      420
ccagtgcatt gacacagaat tcagtagcaa aatagacaac ggggaaatag ctttagagca      480
ggcaagatac atcataacca agctcgctta ctacagaccc ctataacggt atgcaccatg      540
atcatctcct ctcttcattg actctttgtg acgaggaaca tcagaccata cttttgcact      600
ggcaaatgca tgtctcggtg ttgatgaggc agatttcatg atcaatttac acaagctaatt      660
atattagtat tactagaggg tctaaatatg gaaagtgcgc atattgctga tgagtgcc      718

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(2) INFORMATION FOR SEQ ID NO:700

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 541 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...541

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:700

aacggatcac	ccggcgagcg	atcgggggtcg	tattgagtg	cggagcagcc	tctatctgct	60
gaacgnatgg	atactgagcc	tgccgggtcg	catagacctc	gggctgtctg	ctacctcctt	120
acactgagcg	caggatttat	ctgtctgtga	tggccgggtc	ctggatcagc	cgctgttgga	180
agcacaacct	gatggagatg	tattcaatgt	ggagaatgaa	agtttcatgc	aggaaacccg	240
tctgagacga	acgagtattc	ggtgaatctc	ccgactcggt	tttattaccg	gaaaagtggc	300
gcgacgggtg	gatcaatgtc	gtgaatcctt	tccgcgcgag	catgtgctcg	gtacgccggg	360
gtcgggaaaa	tcctacgcga	tcgtaaataa	ctcattaagc	aacanatcga	gaagggattt	420
gccatgtata	tttatgacta	taattccccg	acctttcccg	agatcgctta	caaccatctt	480
gcttcagaca	cggaagggcg	tattgaagtg	cagcccgaan	gttttaccgt	aatcaacttc	540
g						541

(2) INFORMATION FOR SEQ ID NO:701

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 443 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...443

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:701

gccaatcaga	acaatcctta	cttccgaccg	aatcgagagt	ttgcctttct	cgccatacaa	60
cggacgaaat	acttcttgtc	gcagcccaatt	ttgcccacac	gaagcagaaa	tcagggtgat	120
tattcccga	cacgcctttc	agacgatcag	ataaaggaca	atgcagcttt	cctgctgacc	180
gatatgctct	ccggagaaac	agcatcggct	gtctcaccca	atacgcccc	tacccgctac	240
atcttcggcc	tacggctatg	ccttgcatcg	cttccgtccg	ctttagacgg	atcagccaat	300
tctcctatag	ctctttcaac	gggtgcaaaa	aacaaacgag	ggttatcgaa	aagaatgaaa	360
catcctcggt	cttataaaga	gaatcgtatg	cttttgaagc	atatgatcag	taggaatttt	420
agttnttcca	aaatctgaaa	att				443

(2) INFORMATION FOR SEQ ID NO:702

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 952 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...952

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:702

gcttggggcgc	agtggacttt	acggtggcgc	tgcactacgt	attcgatacc	cctacgaccg	60
tatcgtctcg	gacgtgggac	atcaggctta	cagccataga	tcctgaccgg	ccggcgcgaa	120
gacttcgcgc	atttgcgcc	atggggggca	tcagcggttt	cccctcgct	aaagaaagcg	180
aatacgacac	attcccgcgc	gacatgcttc	caactctatc	tcgcgagcac	ttggaatggc	240
tgtggttcgg	ctgccaagga	tgagaaacgg	aaggctcatag	ccgtcattgg	agacgttcca	300
tgacgggagg	tatggctttt	gaagggtga	acaatgcatc	gtcttcccga	acaatctgct	360
gatcatcctc	aatgacaaca	acatgtccat	cgcaggaatg	tcggaggact	gaaccgctat	420
atggtggaca	tcctcactag	cagacgtata	atacgattcg	ttacgacctt	tataagggtc	480
tgcgaaaaat	aatctgatca	gcgagacgaa	cagaaaaaat	ctcctgcgct	tcaacaacac	540
ttcaaggcac	tactggcacg	cgagagcaat	ttattcgaag	gattcagctc	cgttatttcg	600
gccccgtcga	tggcaataat	gtgctccgct	tggtggagta	ctcaatcaga	tcaaggatat	660
ggccgggcct	aagatcctgc	acctgcaacg	atcaaaggta	agggtacttc	tcgggccgag	720
aagcaggcta	cgatcggcat	gcgcggggcg	aattcgacat	caaatcgga	gaacgtaaga	780
aagggagaac	aagccccgagc	cacccaagtt	tcaggatgtg	ttcgggcata	caccgtggag	840
ctggcggaca	gagacgagcg	tgctgtcggg	gtcaccgccg	cttgccgaca	ggttgctcca	900
tgaccttctc	gatgaagaaa	taccgaata	ggcctatgac	gtgggtattg	cc	952

(2) INFORMATION FOR SEQ ID NO:703

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1048 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1048

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:703

cccctcgct	atataccgag	atactggaca	aatgagacac	tgtgcaacac	aatagacagt	60
acaaaaaaaa	aatatggcga	aatgacagcg	agcaaaatcc	aataaaaaaa	gtgtgtgagc	120
attgcaaaca	ggagtttata	gctttgagac	gactaccaag	tattgtctac	atagatgtaa	180
tagcagagcc	tacaaactca	aaaaagagaa	gagagggtac	gcagaacaga	actttctgaa	240
caagaaaaaa	ggtcagtgat	attatagaca	aaccttatct	ctccatctca	gaagtgggcg	300
attacttggt	attagtaggc	atacaatata	tagatatatc	taccagggaa	cttaaaggct	360
tataatttga	gttctcaacg	ctcaatcgtc	aacgtgaaga	cattgaacgg	atgttggcag	420
agcgacctta	tgagaaacga	cgcccagaga	tgcaatcgta	attacggaac	tatatacgac	480
agacgaggtg	gcgatatcca	caacatatct	cgatcttctc	tttttgcaat	agccaagcgg	540
agaatatccc	tcgaacttat	aacagaggca	agacctattg	gagcaaacgc	atatagatgc	600
ctattttgct	aaacaggctc	ctgcttctca	tatcgaaaaa	ggtgtacagc	cgtggagata	660
caagaaagat	tcgatatgac	gctcacgccc	tttacaactt	catctctgat	cacaacatcc	720
ccagaaaagaa	agtcagggtg	aaagctacta	ttccaccaaa	catgtcgaag	cagctaaagg	780
agtgttgata	aggcagctcc	aagctactat	actgttcggg	aggctatgga	aaatttggtc	840
ttactcgtga	ccagctctat	caatatacca	aacgttataa	tgctctaaac	taaagcaagg	900
tcggaatgtc	ctcatttctc	agcaagaatt	gatgaagtcc	tcaaacctcc	cagcatcact	960

cgataagtta tttgttggtg tatgggacac cctcttatca ccttattctt ttgcaactga 1020
atcaataaaaa taaccctcta atcaacgg 1048

(2) INFORMATION FOR SEQ ID NO:704

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 897 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...897

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:704

tcnngctgtc	tcgctctcct	tcggggcctg	ttcttggett	ggttacttgc	ataggcgtag	60
tgctgattcg	tttcggtatt	cgcctccgtt	ccctcctggt	cttatttgcg	gtgccgaacg	120
ggcggagata	gaggggtgtac	ccgtttatct	gctcctcgtg	taaggatgcc	gttcagcttc	180
tgtaggcgta	tttatctccg	accgatctgc	gctcataccc	ttctgtgaga	aatgttctta	240
tccataacaa	gaacataccc	gagcaacgca	ctttgtcgat	cttttgatcg	ccgagtggca	300
tgcattgctgt	tttggttcaa	tccgtttgct	tgggctttga	agccgatatg	cagcgcaatt	360
tggagttttt	ggccgatcgg	gctgtgctcc	tcgaggcgtg	agcagacgcg	aatatcaata	420
tgaattggtg	ggatttacgc	tgaggtcgcg	gccggacctc	tgtgtagttc	ttacaatata	480
aacgacttaa	agaaagaatc	agaatgatga	acaaaacgaa	atccaatcgt	gcggccggac	540
caggatatct	gtcgcactcc	cgttggtctg	ccttatgctt	ctgagcggaa	atggctgtgg	600
gcgggcaatg	ccgtatccga	agtcgggaa	gtagtagaac	cgttgcgagc	gatccccgcc	660
ccttgctctga	tgtccttgac	atctcctgca	gcaggacgag	gactcgtgtg	gttccgagct	720
agatactcca	ccatcttccc	cgggggaatg	tccgaactga	tgcactttct	gagcaagaat	780
ttaagtatcc	ggaacaatct	gcaaagaaca	gcattccaagg	tcgagttgtg	gtccgtttat	840
tgtcgaaaaa	gacggcagac	tgactaacat	acaagtggaa	aaagcgtagc	acccgaa	897

(2) INFORMATION FOR SEQ ID NO:705

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 374 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...374

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:705

tggtggaatt ccatgtatcg agactccctg tcagatagcc ggtgatgcgc gcaagcgagc 60

tatccgatcg	ctgccgcata	caggacat	gtcgtagaca	cacctttgaa	gccacagccc	120
ttacaggtat	ccacaggatg	attaatcaac	catagccgat	gttttcatcc	ttcatcatct	180
tgacaatttt	gaggataccg	atacattctt	cttagcttcg	ccatccaact	ccacataagt	240
aatatgccac	cgccggtaat	agcatggaaa	ggagcctcgc	acttgatctt	ttcactatac	300
ctatcgattc	gcgaacatcc	acatggaaa	aattgacgta	ataatgcaaa	atccgttacc	360
ccggggataa	tccc					374

(2) INFORMATION FOR SEQ ID NO:706

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 626 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:706

tattcatcca	gataatagct	cggataattg	cggttgcatc	cctgcacatt	tccttgtgtt	60
cgggaaacatt	ccctgattcg	tagtcttcgt	cttcgacagg	atgagacgat	tctcgttaagc	120
gaaattatgg	gttgccataa	ctgtttatgt	tttgtcaggg	ttagaaaaatg	tttctctatg	180
gctgcattca	gcagtgatca	tcgtcgtatt	cgtcctgaga	gaggctgatg	ctttccgcac	240
ctttgcatag	cagctttctg	cgacataaatt	ttcccaactg	tacaggcgta	cataccgttt	300
cccttattca	ccgaaaccac	aggcacggtc	ttaaatccga	catgcacaac	agcagttcgg	360
tcaattcaca	ggcacgattt	ccgtattcgc	ttccacgata	agaatggaca	cgtccgaacc	420
cgtttttatg	cggtaatgcg	agaggagtta	tttcgtttcc	tgcgatccat	tgagtgtatt	480
aatctttctt	ttccataatg	ctgacatttt	ttttgcgtct	aaagctcgga	gtgtgccgat	540
tcgtttcgtg	ggctgttcaa	ggtggccgga	gggtatatgt	caaggcttcc	gaaaaaatac	600
gacttggaac	gaaagtggaa	atgtgg				626

(2) INFORMATION FOR SEQ ID NO:707

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 497 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...497

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:707

tgagacaaaa	acggattgcc	gaatgtattg	gtgacctgaa	gggctgctcc	aatagcatgg	60
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caaagaggaa	gaagatagcc	atacgacgtt	ggcggaaagg	acaaaagcat	ccagccccaa	120
gacggcaagc	accccttct	tcttgtttct	tttgcaggag	ggcagtgagg	caaggtaaaa	180
gcatacaatc	ccaatgaagg	gaagccaccg	cactgacata	gaattgcata	ctgctcatta	240
cccatcgcat	atatcgacgg	tccacatggc	caaatgaag	ccgacagtac	cccaacgcgt	300
ataggaggaa	attcgcgcac	tatatccata	ccggctttct	ccaagcagta	taggctatcg	360
aattggtgag	agctagggtg	ggcatatagc	tctgcagagc	aggagcataa	cgggataaaa	420
aacggagtaa	ctactcagcg	tgaagcataa	ccagcaatat	ggctccgata	agatggcacg	480
ctcccaagag	tttgtgc					497

(2) INFORMATION FOR SEQ ID NO:708

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 484 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...484

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:708

acttcatcgc	cgtagcatag	gactcctttc	cctcttcttc	gccactttta	tcttggcgaa	60
gacgaaagga	tcgtaggcat	agcgaaaggc	ctgggtgaca	tcacccatgat	gatggccagc	120
ttgtagcacg	cgccatagat	accgagcgtg	ctttcccttc	cgccggatcg	tcgaaaagca	180
tgggaaagag	aatctttcgg	cctgattgtt	gaagctgccg	gccaagccca	acagcagaat	240
agggagaagt	aggccagcat	cttgccgaga	acgtccggac	gaaatacgcg	gccgcatgcc	300
gccaatgagg	aaaaagcatg	accatctgca	cgaggntgca	aataagttga	tgacgaacac	360
gtaccccaat	tcgtagtctg	ggcggtagaa	gcatacgtcc	actccggatg	taaggcataa	420
ataccgggga	cacagggang	agaaaaagat	cgtaaggacn	atgggtcanc	aggattgaat	480
gtca						484

(2) INFORMATION FOR SEQ ID NO:709

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 136 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...136

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:709

tgtgcagaca	cttttaagat	aggtctgtaa	ttgtctcaga	gtatgaatcg	tcgcccgcact	60
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tccttaaaag gaggtcgggc gacttcgttt ttattattct gtccggtaaa cttgtcaaga 120
 ggagaccttt gaaaaa 136

(2) INFORMATION FOR SEQ ID NO:710

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 484 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...484

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:710

gaattcttcc	ttttttaata	ttataaacia	ccagttcctg	tttggtctgtg	tatctttttc	60
cttatcaatc	tcagacccaaa	gaatatattt	aaactgctgg	catctctgtt	tcttgataat	120
tcagtataaaa	taggtttgtg	atattcgtac	tatctaaaaa	agatttatat	atctcatatg	180
cagtacatgt	cttaccaatc	cagctgctgc	ttctacaaca	acaagatgtg	caccttttct	240
attgatgttt	ctttgattac	agaaatgata	tcagaagtcc	catttatagc	atctctgcat	300
cttcttttga	aatagagtaa	ggcatactga	tgtactggta	cttatgtcac	tgccgcaata	360
atgcttttact	tgattagtgg	gcaaattctg	tgatctccta	ttaatggcat	ttgcagtggt	420
ttgtggtgtt	aaaaaaaaacc	ttaaacaat	aacctctctg	cttcttcnat	aggatctgga	480
acct						484

(2) INFORMATION FOR SEQ ID NO:711

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 510 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...510

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:711

gggttgcatc	gtaattacgg	gcacaagcat	ctcttcgagc	gatatgcctc	gtgctggaat	60
gtattgcatc	agatttgtag	gtagtagttg	tagttattgg	gtaggcgaag	aagtcaccc	120
ctttcgtgaa	gatgaatttg	tcagagagtt	gttatggggc	agccctacac	ttgcaggatc	180
tttgatctcg	aatactcttt	cgggttgtag	tcagagttct	tacctatttt	gtatctgagg	240
ttggtttggt	acttctgtct	ccgatcactt	tgacgggatt	cttcacctga	atagaccatg	300
gtcagtggtc	aataccactt	tataacccat	ttcggaatg	ctgggaagag	attgtaggta	360
gtcgaatgct	tgaaccagct	tcttcgtcag	cggcgatagg	ctgcttcgtt	ggatgccagg	420

tctcgaatca tcttgctatc agtacgagca tgcgacatca tgtccaccga aagttcagga
ctatcacatt agttgggttc tgcgacagt

480
510

(2) INFORMATION FOR SEQ ID NO:712

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 549 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...549

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:712

acggcatcaa	acaaatcgag	ctacaggtcg	attctcggga	ctcacgtcca	ccggtgccat	60
gattactctg	gaagatggga	caaagatcgt	tacaaaaaca	ccggtatcag	tcgcacgaaa	120
gcttctcccc	gcctgttccg	actcatgaga	aagactatcc	gggcgtagaa	gttgctcgatc	180
tccgataata	aaaaccatct	tagtccgttt	cctctttgat	agaaagaggt	tattaacgaa	240
caacgaaaac	tatgaaccaa	acaacgaaaa	cactgtcgat	cattcttatc	ggtagctgac	300
cttccttgtc	ggggcaagcg	caaaactcaa	cgccccccct	tgtgggaccg	tgctggagga	360
ggtacctttc	tcccgaagaa	atcaaccttt	tcgcagacaa	cgtcagccct	tctttcaaaag	420
cctatattga	attggcattc	accgaaggaa	accaaagcca	tgctcaccat	tccgaaatag	480
aagggatggg	gaccaaaacc	ggcagaatcg	aaagaaggaa	atcgactacc	gaatgcaacg	540
gtgacgatg						549

(2) INFORMATION FOR SEQ ID NO:713

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1631 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1631

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:713

aaggacgaac	cagatcacca	aaccggaaga	tttccgatca	ctactggcgt	atcggatgcc	60
tattttctatc	gaaagccttt	ctgaagacta	tcgggagcga	acgaatcgat	agcctccctc	120
attcgcacct	caggcagagg	ataagctccg	ggccactgta	tcttagcagc	tacctccacg	180
gtttttctct	gaaaggatgg	agtggagtta	ttttattatt	ctgcgtttta	tcattccctt	240
tgtgtctttt	gcccacgata	ctaaagagtt	atagattaga	ataaaaaaga	cttagcttaa	300
cgttgtaagt	aagactatcg	atctgggaga	tggtcgttcc	atcagatcga	aaccggtaaa	360

ttggccaagc	aggccgatgg	cgccgtgaca	gtaccatggg	caatacggta	ttgctcgcta	420
cagtttgtgc	agccaaagac	gtaaccccg	ctgcgacttc	atgcctcttc	aggtggaata	480
caaagagaaa	actccgccat	cggacgcttc	cccggaggat	tcactcgccg	cgaaggcaag	540
cttcggatta	cgagatcctg	acctgcggcc	ttgtggatcg	tgcctttctc	cgctattccc	600
ggacaattat	catgcagagg	tattcgtaaa	tgtgatctct	tttcagccga	tggcgaggat	660
atgcccgcag	ccttgcccg	tctggcgctt	cgccggctct	tgcggtttcc	gatataccgt	720
tcaacggccc	tatcacgaag	tgcgcgtagc	acgtgtggac	ggccgctata	tcgtcaatcc	780
tacttcgagc	agctcgaacg	cgcagacatc	gacttgatgg	tcggagccac	aatgacaaca	840
tcattgatgg	cgaagggtgaa	atggacgagg	tacaggaatc	cgaatgctcg	aaggcatacg	900
cgtggcacac	gaagccatca	aggtacagtg	caggcgcagc	tcgaactatc	cgaagctgta	960
ggaaaacttc	aaaagcgtga	tacagccatg	aagtaaacga	tgaagacctg	cgcaagaaag	1020
tgcacgacga	tgctatgctc	gtgcctatga	ggtggctacc	agcggaaaccg	gcaaacacag	1080
cgcggcgaag	cttttgaaaa	gatcgtggaa	gagttcaaa	ctcaataacg	gaagaagaac	1140
ttgccgagaa	ggccgaaatg	atagctcgct	actaccgcat	gtggaaaaag	aagcgatgcg	1200
tcgtgccatc	ctcgacgaag	gcaaagcctc	gatgggcgta	agaccacgga	gacccgtccg	1260
atatggatcg	agacgactgc	ctaccgggcc	cgcatggctc	agctatatcc	actcgtggtg	1320
agagcagtcg	cttacgaccg	ttacgcttgg	tacgaagagc	gacgaaaagc	tctggacgat	1380
gtactcaatt	atacgaagaa	gcgattcctg	ctgcactaca	attccctcct	ttctctacag	1440
gtgaagcccg	cccccaacgc	ggtgtaggcc	ccgcgagatc	ggtcatggca	atctggcgca	1500
tcgcgccttc	aagcgtatgt	accgacggac	tacccttatg	tggtagctgt	aatcagcgac	1560
attctggatc	caatgggctc	gtccttcgat	ggccactggt	ctgcgcgggt	acttttgctc	1620
tgcgcgatg	c					1631

(2) INFORMATION FOR SEQ ID NO:714

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 445 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...445

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:714

tatcggacat	cctcaatata	acggccatgg	ccgtactgga	cagccacgct	gtctgatttg	60
attcagggtat	aaatccgtac	aacaaataga	ggctgtttac	tgcagaaaacg	agcctctatt	120
tttcccttgc	agctataaga	aagcctacgg	aagatgctaa	ggctaaaaag	caaagaggct	180
gctccgcacg	atttgcgagc	agcctctttg	tatttggggg	ttctatcttt	cggaagagtt	240
cccgaagtc	gccttttatt	gtccttaaat	ccgatggact	gactttactc	ggtagacatt	300
ctgcccgcct	gagtcgcggc	gcggttctgc	cggtctccaa	gagggcagggt	tggcttccgt	360
cggaatgtag	atcacggtct	tgtcattcag	gcgcctctgt	tgacgccacc	catagatact	420
gaatgtattg	tgggcgtaaa	gcttg				445

(2) INFORMATION FOR SEQ ID NO:715

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 537 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...537

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:715

gctcaagatg	cttgccatga	gcggtgagga	cggaggaatc	aagagtctgt	caatctcaac	60
atcgtagcgc	tctctttgag	ctatgagtat	gacccctgga	ttacctgaaa	gcgcgcgaga	120
tgctcagcaa	gcagcgcgac	ccgttattaa	gaaacccgtc	ggggaggatc	tgctgaatat	180
gcagacaggt	attttcgcta	caaaggacgt	gttcactttg	ccataggtag	acccctaaga	240
gaattgccga	gagcatcccg	gcagatgcgc	cgcattgccc	gcagttcaca	gaggaggcaa	300
actgatcgat	gcagaaatcc	atcgtagcga	ccgtctctat	ccggcaatta	tgtagcatgg	360
gatcttctgg	acggatgcga	ccacgcgggt	tccattatag	caaggaggaa	aaagagacct	420
ttgtaaacta	tctgtccgca	caatcggcaa	agtggagatg	caggataagg	atgaagagga	480
attgaaacga	tggattctga	tcattgtatgc	caatccggca	aagggcata	tatgctg	537

(2) INFORMATION FOR SEQ ID NO:716

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 492 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...492

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:716

ggaagggtta	ttgtgtaacg	gtctaataaa	aacgaaaaga	ttattgccgg	agagttgtgc	60
aacggaaaag	ccatgaatcc	gatagtcggg	attcatgggt	ttccggttaga	gtgaggagga	120
ttgttgtagc	cttagcaatt	cccttacatc	gtactgatga	ggctgccatc	tgctttgctt	180
gccaattctt	tggtggtact	cccattactt	tgcccatcat	tttactgtca	gtgacgccga	240
gacggtgatt	atttcctgta	agatgggggt	cagttcctca	cgtgagagtt	gtttggtagg	300
taggcctcga	ttacctcggc	ttcggcaaaag	ctcagggttcg	gccgttcggg	tctgccgttt	360
tctacaaaga	tggcagcaat	ctcgcggcgc	tgttcaccat	cttttgcatg	atcttgaggg	420
ctgcattctt	ngacagagtg	catcgctgcc	tttagctgtc	ttggcttcga	gaaattcttt	480
cttcactccg	ga					492

(2) INFORMATION FOR SEQ ID NO:717

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2202 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2202

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:717

tgcgaaagga	agatcgagac	aatctttctg	catgaacgta	atccgattgc	caaattctcc	60
gaacgtgctt	tctgctcccc	tatcctcatc	atttccaaga	aagatcgaca	cccgtcacct	120
gcttgactga	agggatatgc	ctgcatattc	gatggctaaa	tcacccgttc	cggtagccac	180
atccagcact	gtatgtgagc	gaaaggctcg	atcatacgga	tagccttctg	ccgccataca	240
cgatcattcc	ccatgaaaag	aggtgattga	gacgatcgta	atgtccggcg	atatattgaa	300
catggcctct	acctgttcat	tcttggggca	tccggtgtca	taggggttat	tctttcagga	360
ctttgcatgg	cacatgattg	tccgacagtc	agcgactgct	aacgcagata	ctccgttatg	420
ttcttttcta	ttctttctgc	cgattgtctc	ggtctgcctt	ttcgaagggc	ttacctacca	480
ctcgctcgta	aattctatgt	accgctccga	cacactgtcg	cagtatgctt	ccgtcatttc	540
ggtatttgct	ggccgggctt	gccctggaaa	ccgttctcga	tcagccacga	cgaacaaact	600
ccttgataaa	ctgcttctgg	gcttcgcccc	gttcgaacgc	tcctgatagc	cctcggcata	660
gaagtgcga	gaagagtcgg	gcgtattatc	tcgtcgatca	ggtagatctt	accgtccttc	720
ttgccgaatt	cgtattggta	tccaccaaaa	taagcccctt	ttcagcagcc	at ttgagtag	780
cgcgctgaaa	agtgcgtaag	tatagcgctt	tatctgctcg	tagtccctct	tcgcaccagt	840
ccctgagcaa	tgatttctctg	acgagagata	ttctcatcgt	gacctcatcg	gccttggctg	900
taggggtgat	aatgggatgt	tcgaaaacgt	gttttcgcgc	atgccctcgg	gaagaggcag	960
accgcaaagc	actcgctcgc	ggcagcatag	gcacgccatg	cacttcctgt	gatgtagccg	1020
cggatgacct	ctcgaccttg	aacggttcgc	aacggtgtcc	gatagtaacc	atcgggtcgg	1080
cgtagctatc	ttccagttcg	gaactatata	gcgagtggca	tcgaggtgtg	tgccgctatc	1140
tgattgagta	cctgaccctt	gtaaggcata	ccggccgaag	gactacgtcg	aaagccgata	1200
tgcgatccgt	ggctatcatg	accagagatc	attctccaac	gtgtatacgt	cgcgcacctt	1260
gccgtgatat	acggtttctg	tcccggcagt	ctgaagtcgg	tacgagctaa	tgtttctttc	1320
atctgaattg	tatgctaagt	gattcgtaat	aatatcgata	tcgcctgatt	cttatggttt	1380
gcgcaacgac	agctgctggc	tccgctctct	ttttccgctt	gcctcgtacc	ggctcgtaggc	1440
atccaccaca	cgtgtgacga	gcggatggcg	actatatcag	cgcggttgaa	tgcaatatag	1500
cctatccctc	tcgttccttg	aggatatcca	gagcctgacg	cagaccggag	tgcacacctc	1560
tggaagacg	gtctgcgtaa	tgctgcgggt	gacgatcatc	ttggcattgg	caccaagcgg	1620
gtcaggaaca	ttttcatctg	caactcggtc	gtattctgag	cttcgtcaga	atgaccaacg	1680
catcgttgag	cgtacgtcct	ctcatatagg	ccaatgtgct	atctggatga	tggttgtttc	1740
gatgtactct	tttagcttca	cggcgggcat	atctcctcca	gcgcatacata	cagaggctgc	1800
aagtagggtat	cgacttatct	ttcatctcac	cgggcagaaa	tcccagcttc	tcgcgggctt	1860
cccggcagga	cgtgagagaa	tgatacggcg	cacctgcttg	cttttcaagg	ccggacagcc	1920
agactgatgg	ctacgaaggt	cttgcccgtt	ccggcagggc	gatggcaaaa	acgaggctcat	1980
tggcctcgaa	agcctccaca	agtttctgcg	attatcacct	ctggcaatga	tgctcttgcc	2040
tcccgttcca	tgacagatag	atgttttaggg	acatcgctcag	cgggcagcct	ggcaccctgt	2100
gcaatgccag	gatcacatct	tccggcagga	ggttgctact	acggcaatac	gccacctcgg	2160
ctccagaact	tccaggaaac	gatccgtctc	gcgcgaatcg	cc		2202

(2) INFORMATION FOR SEQ ID NO:718

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1029 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1029

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:718

```

catacttctc tcgactatca tctaatttct gatatacata tggcttattc tttaaaaatc      60
tcgtctttga agggggtggt gtaaaggcat tgcctatacg gggccctcga agtgctgcag      120
gaagaaaaga ttttcccaa aatcaaagag tagccggcac atcggccggt gccatcatgg      180
ctgtgctcat cggactgggt atacaccgag tgagatcaaa gagataatgt ggtgcctcaa      240
tttcagaatt tcatggacga ttcgtggggt atcattcaag atacgaaacg gctgtcgaga      300
agttcgggtg gtacaaaggc gatttcttcc gcaattggct tgggacctga tcaaggccaa      360
gaccggcaac agcgaatcga cctttgcgga ttggctgcaa tgaaaggaga aaacaaatct      420
ctcgacattt ctctcatcgg cccaatcttt ctacaggctt ctacagagatc ttttcggcag      480
aacatacacc cgcactctga tagccgatgc tgctcgtatc tctatgtcca ttccgctggt      540
ttcgtctgcta agcgcaactt ccgaaacgat gtatatgtgg acggcggttg ctgaacaact      600
atcccgtaaa ggtgtttgat cgtaccaagt atgtaacaag aactttacac gaacgggcta      660
ctatgaacct atcaataaga agctgggaaa cgccccagga agattgccga ttacgtatac      720
aacaagaaa cattggcttc cgactcgaca gcaaagagaa gatagccttc ttcagggaca      780
acgcgaacct cctcatcgag atatcgacag cttctttgac tataccgtgt cgcattcggc      840
actctgctct ctgctcaaga cgatgtacac ctgcacagtg atactggcaa cgcaccattt      900
acatcgatac gctgggagta aagactacgg atttgccatc agcgatgccc aaaaaaaagc      960
tttgctggaa tccggccgct atacactcag tcatatttgg agtggtacaa taacagcgaa      1020
gaaaaagtc                                     1029

```

(2) INFORMATION FOR SEQ ID NO:719

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 497 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...497

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:719

```

ccgccggcaa tgctttcttc ccgtctttga tttctcccgg tacgggtata gcgatgtcac      60
tcagtcgcaa ggagtacagc cttacttctc tatcgccaac cgccgatgat gagcgtgatg      120
acagctcttg tcctctcttt cgtactcgcc tgggtttggc cgccatggaa agccgtggca      180
tgaagggaat gatgcagatt ttcaggagat tatcaccaag ttgatcgcca aggttattat      240
cccatgctgc ccatctatat cttcgggata tttctgaata tgacccatca gggcaagtgg      300
tgaagggtgt gtccgtcttc cttagtatca tcgggtatcat tttggccttc atatcatcct      360
gctgatcttc caatactctg tggcaggatt caagccaaga agaatccttt cagaatgctg      420
tggcgaatgc tgccggctta ttcaccgctc tcggtacgca gtcttcggca gccactattc      480
ccgtcacgct aagagtg                                     497

```

(2) INFORMATION FOR SEQ ID NO:720

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 953 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...953
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:720

ctgaccaatt	atattcgccc	tacggacttt	cgctcgatga	ctatttcata	accgcgagga	60
ttcgccacgc	gatgaatccg	gagactatga	tttcgaatgc	tctacgcttt	ggatctgccc	120
cttttcaata	aggatctgaa	gcagatgtcg	ccggtgaaga	agtgagcctg	cccacctatg	180
acttcgcaac	cgggataggg	tctacaaagg	aaataccata	cagctgaaag	acggagatat	240
cctgacctcg	aaggcattca	tgcgctgaat	ccggagctga	tacccggtgt	gcccaatcaa	300
gtacgtataa	gatctatgtg	agcgctctca	ctgcaatagg	attgatgctc	acaatcggat	360
ccccagtacg	gacaaccgac	tgatcaggcg	atggtgcgcg	actatcgcta	tcgcaattac	420
tccggtctgg	ggacattgcg	tgttggcaga	gtgtccgacg	aggagaggaa	aaatgggtat	480
tcccgttcca	gagaatgcac	acgtcatgtt	caatagtgcc	atgctctacg	agttggctgt	540
ttgctgtgctt	acgcggagcc	gatcttacag	gcaatccctc	gtaacgaacg	gaatatgctg	600
aagcccgtag	actgctacgc	tttttgagca	gtttccgatg	ataccggcac	gtttgcttcc	660
gaacaactct	ctgatgcgtg	agttcccgga	ggaagcacat	tccactactg	atgccgaatc	720
agtcgtaaat	agcagaacaa	accgagactt	gggtaacatt	tgaagacgcc	ggctgagtca	780
tatccggcat	attttcagca	aaggaaacga	cgtaatcggg	ctatataacc	gactcaattc	840
tcaagaatac	gaactnagag	cgaaagcctt	tttggttcgt	aatttgtttg	gacccctga	900
tcgagtgttc	cgaatcggac	tcgtcgggaa	gagctttttt	tgctactttt	tgc	953

(2) INFORMATION FOR SEQ ID NO:721

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 333 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...333
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:721

actgcccgga	gccatgatcg	cccttcgaaa	gtgaagggcg	gttgccaagc	ggtaagaagc	60
tgatgaacaa	cctgcacctc	tgctccctcg	ccgtgagctg	ggcgatacgg	aaaccctcat	120
ccagcatccg	gccagcatga	cccactcccc	tacacacccg	aagagcgtgc	tgccagcgac	180
atatccgaag	gactggacgc	ctgtccgtgg	gtctggagaa	cgtggaggac	atcatcgccg	240
acctcagcac	ggtctggaca	gctgatctaa	acacccaagc	tgataaggct	gacaaagaca	300
tatgaacccc	gaaagtccgc	acgacttcgg	gtc			333

(2) INFORMATION FOR SEQ ID NO:722

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1444 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1444

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:722

agatgtcttc	caacgattat	ctgacggact	atgtgatgac	gatgctggtc	gtctctccgg	60
ctcttaccgc	tgcaccggag	cataaggagt	ttcagccgtg	aagcgtatgg	ggtggaatgc	120
tctcgatgat	gctgcctcac	gactgatgat	agaatgaagg	aatacgaaaa	gaaanccaag	180
agtaagtaca	aaatacgccg	gaacgagcac	tcaactatct	ctatctgctt	acgatcgaca	240
gtcgcaccca	agctctctgt	gccatgctgc	ccgcagtgtat	ttcctcgata	ttctggccga	300
tcccttccgc	atatttccat	tttggatatg	ccgcgagctg	ccacgtactc	cacggtgtag	360
ggcgtaaggc	actggccgat	gatttccctc	gtctatccgt	gagcatatca	tccgcacacc	420
ggatcagggg	gcgcactttg	cctgccttca	ggcggatatt	attggtgcga	ccgtcgctat	480
ggtatgcaga	ggaagcgatc	gaggccttcg	ctcgtatcgg	tacgtctcag	gacagctcta	540
tatcgaaggc	ttgcagatgt	ggctcctcaa	tcagaaaaga	actcagcttg	gccgagtctg	600
ccggcttctt	ccgatgcgat	atatgctctc	ttgttagtgc	aggaaaagat	cgaatggtag	660
aagccactgt	gtctgtccgg	gctccttacc	tgccttgtca	ggtacatttg	ccggtgcagg	720
cgaagtcgg	atcgtaagg	ggaagatctt	ccgcaaggca	aactaagtgc	agagcttgct	780
cgttcggaaa	aggatttgct	tgggcttcc	tcttggcgga	atacgatgcg	ccgcggcgga	840
tctcgtagct	acgggtaatg	gcttgtcgg	agagaagcat	ctttctccga	gcaggtgata	900
gatggcaagc	taacgctcgt	acctctccga	ggggcgatcg	gctggaagtc	ggtaaaccgc	960
tctgtacgca	actgaccatt	cgctcgatcg	cgatatggac	ttcattgtcc	tgacggacaa	1020
gcgaacggcg	cggtggaacc	tatcggccaa	ctttcgggtt	atgattatgc	agccggaagt	1080
tctactacag	agaaataaag	gatagcagta	cgcgtttcta	tttcgatgtc	tggtaaagag	1140
atcctacaag	ctccaatact	ccaccgttgt	ggttcgtcgg	gagcttatgc	ctcaggtatc	1200
gctaccgtga	cgagtgccta	tgcacggagt	ttaccgggtca	taccgatggc	ggcagacagc	1260
tgcaaacagt	tccgtcgcaa	atactcaata	aactaaagaa	gcaaatgaac	caacaaccaa	1320
tcaaategcc	gtattcggac	tcgggtggagt	aggtggctac	tacggagcca	tgttgctctc	1380
cgcgagctg	cgaaggatgg	cctcctcgaa	gtttcttgga	tgcgcgcgga	gcacatttgg	1440
aagc						1444

(2) INFORMATION FOR SEQ ID NO:723

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1068 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1068

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:723

gttctgggac	ggaatggccg	atatggatgg	acatggagtg	tttacgaagt	gcttgacgat	60
cgcaatcgcg	ccggcaactt	tgtgctgaac	atggggtttca	tcaggatgca	tcaggccttt	120
tggcggtttta	cgacaaggct	ctttacgacg	cttcgctatt	ccggcgggca	tgactgtcgc	180
tgccgagctg	aagatcgacg	aggagtgtac	agcgggtcaag	taaagctgac	agagcgttcc	240
ggcagggtccg	tatcgatggc	gactatctga	tgggtacgga	taagtatcgg	ctcgtatgca	300
ggtggacggg	ctgaatttca	gtgccttcat	gccgaaggat	agttcgggtt	catgcaggca	360
gtgcttcatg	ccgaaggggc	tggattcgat	ctttcaataa	acgtactgtc	tccaccatac	420
acacatcggt	caaacacatc	cttggaaga	acgagatttg	gacagtatca	ctttcgatgc	480
ggcattgaac	aaggagtgtc	cttcgcttca	ttcaatagca	ccaactcctt	cctgaacgga	540
gtatgcaatt	ggatgccctc	cttggcaaaa	acaaactgga	cggctctgga	tggtgctggat	600
ggattcggcg	gatttcaatg	cattgggctt	tgcagaccca	cttttgcggc	agcttttgtc	660
cttgagggtc	atgtgaaaag	cgatttgctc	agacacatcg	gttcgaagcc	tcggtacgcg	720
attgttacat	gcagccgaac	gctataaagt	aataccggag	cgaatagata	tattagccga	780
taccatcccg	atagcatccg	tctggatctc	gtgtcgggcg	acttgaaaat	ggcctcagag	840
tgggagaagg	catagatgcc	gttacgggtc	tgtcccaatc	tccgggaaga	agatagagat	900
attccgcaac	gactctattc	agcgtctcgc	atctcttcga	tttttcaaga	gctgcctcat	960
gcgaccttta	ccttgcaagc	cgatcgctac	aatccgctcc	acgacttgat	gggaagtaaa	1020
cggtatgaat	acaactccat	ccgtggcaag	ctggacagtt	tcgcccga		1068

(2) INFORMATION FOR SEQ ID NO:724

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 594 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...594

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:724

actctagagg	atccccgatt	ccatttccct	caacaaccag	aacatatgtc	ccggagcctg	60
agaatacaca	tccatactga	agacactcgt	ccctgctata	attccttggt	cattgcagcg	120
acttcttctc	ctgcgggtgt	ataaagctta	tccgatatgt	gccggcaata	ttcaaactta	180
ccgaaacagc	cagttcgaac	gaccggcggt	gaaccatgca	cgaagagctt	tggcagctcc	240
ggtcaagtac	atgtattggt	ttcgttcata	cacgtaaaact	tgaaggatc	aggtcgccga	300
taaagggata	agtctctttg	cgaaccacta	ttgtcagcgg	caggatatag	tattctacct	360
tatcattctt	gttaagacct	gtaaagctat	aatatagtga	cctgttgatt	ccatcgtcac	420
atcagcagcc	ttaaagctac	cgaaccattg	atacgatagt	aacattgtac	cggcgagata	480
gtagcattgg	gcagagagcg	acatctgctt	cgatcttata	atcagggcct	gcctgttcgc	540
cagtatcggg	tagtgcttga	tatagagata	gcccttatcc	gtacacctctg	agta	594

(2) INFORMATION FOR SEQ ID NO:725

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1274 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1274

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:725

ttgaagatta	tccggttatt	gtaatgagca	catctcaaca	ccacgagctt	aaatcgggtc	60
aatatgcccc	tccaaaacga	aagaactctc	gccttggtta	tccacatccc	aagaacttcc	120
ttatagccct	gtcgttaagt	cctacgctag	ataaaccggt	ttcttgatta	tcttgccctga	180
ttctcttact	ttgaattaga	caaccatata	acgcctgtca	agaggagaat	tttgccattc	240
aagggagatt	ggattacttt	attagtaata	atggatatgg	cactcgtaga	aagggttattt	300
cgtatatatc	acaaaactta	tcttctatat	ctgatataatc	tgaacgctca	tttgtttgac	360
atagagttag	attacatgct	tttcaatata	aattttccaac	tgttcatctt	cgccatgtac	420
aggatgctat	cctcctcgga	tactacggga	gctccgttgc	catatcgggt	tttcagaggc	480
tatacctcat	gccttttaggc	tctcgcactt	aggcaatccc	catttagctt	gcataatctt	540
tagtgcgaca	aactgtcgga	tgcgacgttc	gaccttttgt	tcaatccgca	gactacaccg	600
gaaagtacta	cggagtgggc	tttgtaattg	cctcccgcac	ggctcattta	acagcctctg	660
gactatcggt	caaccaattc	aggcttatcc	ttgtgcttgt	ctttctacct	cgtcattcag	720
tcgccacttg	gcaatagtgg	acttatgcct	ttactgacat	gctacactcc	cattgggttt	780
ccccttggat	aagtgggtga	tagtaggtta	cttcaaagaa	cacgaacctt	atcatagcta	840
aggagatatt	tattgtgctg	ccttatgggt	gctctttcca	aaatgatttc	aggtttattg	900
tcgtaaaaac	agtatgccac	tatagctgag	acggattcat	gatgaagtta	ttgattgatc	960
gatgtcttga	gtgtacaagt	tgccggtggt	tttcagcata	tcattgatgc	attctatgat	1020
gtatcttttt	caacatgatt	ctgtcacacg	agggcataag	tttgttcttc	atatttgctt	1080
gattccggtt	acaagatgga	tgccgtcatc	aaagaggctt	tcaaagattt	aggcgagaat	1140
atcccttatc	tgcaaagagt	tttccgtata	gttcttagcc	ggaacctgcc	aaaccttcgg	1200
gtttctgnca	tccacgttag	caccttaaga	caaaacgtaa	taaactcttt	acgatcattg	1260
catacgaat	caag					1274

(2) INFORMATION FOR SEQ ID NO:726

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1057 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1057

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:726

cgctctactc	aaagctactt	atctgcttgc	cgccggcaac	ctctaccgct	gacctataaa	60
atatatcccc	atgggtgtgt	gaaatgtgaa	aggtgcaatc	tcttcgacag	atatggagac	120
cgacgaatac	gaatggtccg	aagctgccga	accgctacat	tctcccccg	cagagaagct	180
ctgcgcaagg	aagctttatc	ctcgaagtgc	ctcgtatagg	tgtacgcttc	cgcttccctg	240
cggagtgaat	gaggtagcat	acttcggaag	agggccggat	gagaactata	tcgacgcaac	300
tacggggcga	ctgtcggctc	gtacaccact	gctgccgata	agagtactac	aactatgtgc	360
gtccgcaaga	gaacgggcac	cgtaccgata	cggttggctg	atgctgcacg	gacgaggctt	420
gggcttgggc	atagtagccg	agaaacgatc	ggcttcaatg	ctcttcgaca	agctgtcgag	480
gacttcgact	agaagaagcc	aagcacagac	cctaccagtg	gaacaactat	tcacagacca	540
gatacaaaac	cgagatgaga	gcaaagctcg	caacgtcctc	cgtcggcaca	tcattgtcaat	600

gatgtgcctg	tgcgcgactt	cgtagaggtg	tgcgtggtat	gaaacaacaa	ggagtaggag	660
gatacgatag	ctggctcggt	cttcccaacc	ttggcaccgc	ctaccgtcca	atcggaata	720
cagttggggc	tttaccttct	tccggtacga	tcagtcggcc	aaatggccac	tgccacccga	780
tacgactact	aagcacaggg	cgatagatgt	ggcaaacacc	atgaggtgcc	aacacactca	840
tatatcttat	acggataaaa	tacagcataa	cgcatgaagc	aatgaatgaa	atagtagcac	900
atttccacac	cgagggaagc	gtggcagaga	tgcaccctta	ggtgccggtc	ttatcaatga	960
cacttacaag	gtggcaacag	cgaagccgat	gcacctgact	acgttttgca	acgaatcaat	1020
cacaccatat	caaagatgtg	gaaatgctac	aggccaa			1057

(2) INFORMATION FOR SEQ ID NO:727

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1794 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1794

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:727

gagactgtcc	gccgaatcaa	acggatcagt	cgtagagatag	caaaagctcg	aaaatatcag	60
gcccccttcaa	tatccagttc	cttgccaagg	gtaacgattt	aaggatgatcg	agtgcattt	120
gcgtgcttcg	cgcagcttcc	ccttcgtagc	aagggtgctca	agatcaactt	tatcgaattg	180
gccacacgta	tcatgcccgc	ctgccggtag	agaagccgaa	caagagcgag	ttcgatctgg	240
actattcggt	atcaaggcct	cgcagttctc	cttcaccgcg	ttgcaaaagg	ccgacctgtc	300
ttgggtgtgg	atatgaccag	taccggagag	gtaggctgta	tagggatgat	acggacgagg	360
ctgtactgaa	gagtatgctt	tcggtaggct	atgcattcct	cagaagagtg	tactcttctc	420
taccggaggc	tataagcaaa	agtggatatg	cttgatgcta	cgaccatgct	tycagccaaa	480
gggtataaga	ctatgccacg	gagggaaacgc	acaattttct	cagagagaac	ggaatcgaac	540
gaccaaagtg	ttctggccga	gcgagaacgg	acagcctcaa	gctctggatt	gcttcacaat	600
cgtagagatcg	agctttgtgt	caatatcaac	aagaatctac	cgcaggagaa	ctgaccaatg	660
gttataaaact	ccgccgtgca	gccatcacct	gaatatcccg	ctggttacia	atgctcgttt	720
ggcttctgcc	ttcatacggc	attctgcaaa	catagccctg	aggatattcg	catcaagagt	780
tgggtgaata	caagtagtcg	ctttttcttg	ttgagagtgt	cgattgtaaa	ttcagagagc	840
ctctgtaaat	ccggtcataa	ggccgacgca	cttgacgcat	tccttctctc	tctcctcact	900
tcocatggagg	aaaaaagacg	gaggcagtg	cttagtattt	ggacactgcc	tctgtctttt	960
ccgagcggat	accctccaaa	gatcaatccg	tttcgaactt	ggctatttcg	tctaaccaga	1020
gcgcactgcg	gcatcgctgg	ccatacgcca	tgctccgcgg	ggcgacagac	tgatgcagtt	1080
acttttggcc	catccggcat	acaattacgt	ttgtactgct	gagcgaaaaa	cgacggaaga	1140
ataccatcat	ccatttcttg	atctccgcct	tggtatgatc	cccttgaaag	ctacaccggc	1200
gaggtagtag	atcttcgagg	gcttgattca	ttgtggagga	aatggtagat	gaagaagtcg	1260
tgcaattcgt	atggccgacc	agatcttccg	tcttctggct	gatatttcca	tcctgtccca	1320
cagcttgagt	tcgggactga	tgggagtacg	gacgatgtcc	agcaaaacag	ccaagctgcc	1380
tcatccagcc	agccgctatg	cgctatatga	tcgacgagaa	ttgtaccgta	gtcttggtca	1440
tccctgcatt	gacggcatac	atggacatat	atcgccaftg	tacgttacct	atccgagagc	1500
cagttcggac	agatcacccct	acctataact	ggagcgttgt	atatattggc	cagattcatc	1560
agtatttggg	tcgctcgcgca	gcttgcgtat	tctcgaaggt	cgtatcctgc	acctccgatt	1620
atgtcctatg	gcttcgaagt	gtcggagaca	agcctccttg	atgtcttctc	tttgatcgtc	1680
acggcagatg	cctccatcag	agcaaaaggc	ttccgtaagt	acgatcgga	gttccgaacc	1740
ccggcatcgt	aacggcaatg	atgtcttacg	gggcaaatcc	agccggtcga	atgc	1794

(2) INFORMATION FOR SEQ ID NO:728

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 566 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...566
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:728

gaagtgccgg	gtacggagcc	gcgcgactgt	ggcaactgcc	tgctgcacac	ctgccgatgg	60
ccaaatatga	ggccgagaaa	tacctgcgtg	aggtactcat	gtagcgacgg	aggagaacct	120
gaactatccc	gactgacaac	tgccgggtgt	gcatggggct	tacagtcgcg	tctattttct	180
acgtctgcat	ctctaccctc	atgtcttctg	caatgacata	ggcaggacaa	tgcattttca	240
gccacaacgt	acatctaaag	ctcatgattg	ctacattcaa	ttttcaaaac	aagtcgaatc	300
catatgtcag	agattcaaat	catagaggaa	agagactaaa	aatttcaaac	gcgatcgccc	360
tgacaggctg	cccccggggc	cgatgcatta	aatggttttg	cggcttcatt	cgagcaaatt	420
tctcctcatt	ggtattattg	gtgctattgt	gtgccgatgg	cagccgatg	gattattgga	480
gccggaggcg	tatcggtctg	tatggacgca	atgtgaatca	gacggcacag	cgtggcgcaa	540
aggtgcatac	acggggagca	aggcga				566

(2) INFORMATION FOR SEQ ID NO:729

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 445 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...445

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:729

ggcaaagtcg	cacgtggcag	taatccaaat	gggcatatgc	ttataattga	tttgtgtata	60
tcgttgagcg	tcagcaaattg	ctcgtccgac	catccggcgg	accgccatga	ccagcataat	120
taagcaggat	aatacccgac	tgaagggttc	cagcatcttt	ttctttgcac	ccggaatgct	180
gtgcaaccgg	ttctcgtgac	atgcggatat	acgtcctgaa	aggcgcgtac	cggcatgatg	240
gcagggcata	acgtttgacg	gtatcgatca	aacgggaagt	ctcggttgcg	tgctgtcccc	300
gttgctgcc	gcaaaacagg	cacgaatacg	ccaggcacca	ctcctcgatc	ctcctcatat	360
cggatggtct	tgtccactgc	gatgcgagct	tcgccggagt	acgtacgggg	aatcgcccta	420
cagccatatt	ataatgcgcc	accga				445

(2) INFORMATION FOR SEQ ID NO:730

- (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 525 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...525
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:730

ctcggtcgcg	ctcctgtggc	caacctgtgt	ggcatccgcg	gtgctgtatg	tcggaatggc	60
tgatgaacgg	gctgttcgga	ttcggaaacg	tcttctcttt	ttctgcgttt	tttcgctatc	120
gctcaagctt	atgggtgtcg	tcaaacgata	tctgtcgtga	aacggctgat	attctgcggt	180
gtgatgacct	tttgagagc	cttgacgctg	cattcatcta	caaactttca	ggtctcgaag	240
gttttttcgt	tggggcggta	tgcacgggtc	agaatggaca	ctgtttctcg	aacgaatata	300
ggtaaggccg	gactgatcat	agttctgctc	gtccttgccg	tcacatagcg	gtagtgggtac	360
gcagcgaatg	tatgggtttc	ttccgcggtt	tgtgggacta	agctggatct	ctattcccaa	420
actgccgaag	aaagagagga	aaataatcat	gacgagtccg	aaaacgagtc	gctcggcaat	480
ggctacgaca	gggtgaaagc	gagaatctct	ccggctatct	caaca		525

(2) INFORMATION FOR SEQ ID NO:731

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 492 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
 (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...492
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:731

cgcgaaatcgg	agggttaagat	gcaggagtcc	atcaaccacg	ctgagggagg	gagcaggcca	60
agattctcag	agccaaagct	gaggcagagg	ctaagatatg	gtggccaagg	cagaggccga	120
agctatccgc	cagatcagcg	aagcagtgcc	ggtagtgggtg	ccaatccgac	ccaatacctc	180
attgccatgc	agtatacgaa	acgctcaagg	acatcaacaa	gggcgatcag	accaagaccg	240
tttactcccg	ttcgaggcta	ccggtatgct	cggtgccttg	ggcggtatga	aggattgggtg	300
aaaggatgag	actctctgcc	attcttatcg	ctttgattgt	gatctgcctg	ctgtgcttag	360
cgggcagcat	tattattcca	tggcgggaga	gcactggaga	cggacagcat	tcgtccgaac	420
gaactctcgg	catcgatccg	agtgcgcttt	tctttcggaa	caatgaatac	caatgcacgt	480
tcggtcaaaa	gt					492

(2) INFORMATION FOR SEQ ID NO:732

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 5520 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...5520

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:732

gctgctgtcc	gcacaccggc	aatgatgatt	ttgtgcataa	agatttcttc	cgcaggcctg	60
cagcaaggag	tctaccgcgg	gagattatca	aatgaataaa	gtgactgttt	gttgtgcaaa	120
ggtctcaaaa	agggaaaatg	gctcgtaaaa	ccggtgcttg	tggtactgaa	aaacgtggcg	180
cgagaatttt	ttcgttttgt	tcgggaatga	aaaaaatctc	gcgccaaaag	gaaaaagttt	240
tggcagtgtt	ttcagaaaact	gtggttcggc	gattcgagta	tttgccggctc	gtgttttcac	300
gtttggggaa	tgcgcatcag	gagccaaagg	gaattgaaag	gaaggaactg	gcttttagttt	360
cgtatttttg	cacggatatg	ggacgaatac	tgctatcgac	tacggacgca	aaaggacggg	420
acttgccgtc	accgaccac	taaaatcatt	ccgggcggac	tgaccactgt	acctacccat	480
acgtgctgg	cttcctgcgg	gactacgtca	gccgggagcc	ggtggagcgt	ttcgtgctgg	540
actgccacgc	cggatgaact	acgaagagtc	cgaatcgatg	acctatatcg	ccccttcgcc	600
gttaaaacttg	cccaagcctt	cccctctata	cctataagta	cgtggacgaa	cgcttcacct	660
cgcgcacggc	acagaggact	attctgaagc	cgggataggg	aagatgaaac	ggcgagacaa	720
ggctctgggtg	gatgagtcag	tgcggtcatc	atcctacagt	cgtatctgga	caatcccgcac	780
agatagcgag	acggcttatt	ccccctgctt	cgagacgggg	acggcatttt	ccaccaaaaag	840
acaagagaaa	agacaatcac	aagaacacaa	atactattcg	atgaacaatg	ctccttctcta	900
tctacctata	cggacatccg	gtgctgagaa	agtagcagaa	gatataactc	cggactatcc	960
caaactgaaa	gagctgatag	caacatgacg	gagagcatgt	accactccga	cggcattggc	1020
ctggcagctc	ttcaaataggc	ttacccatca	gggtactcgt	gatcgatgcc	gatccgctaa	1080
agaggattat	cccgaatgtg	ccggattcaa	gcgcgtgatg	atcaacgcca	tatcgaagag	1140
cgaggcgaag	atctctgcac	cgaatacgaa	ggttgctcag	ccttcgggcc	atacacgaga	1200
aggtggaacg	ccccacctcc	atccgattcg	ctatgtggac	gaggactttc	agccgcacga	1260
agaggtgctc	caggctttgc	ggcaagagtg	gtacagcacg	aatacgacca	tatcgacggg	1320
aagtcttcat	cgaccacatc	agtcggatc	gcaagcagct	gatcaaaagg	aactgcagaa	1380
tatcatcaaa	ggcaaaagtac	ggacttcgta	ccgcgtagtg	aagctccgac	cggcaaaaaa	1440
cggtaagccg	tagtcaaate	cattttctccc	ggctctgatt	atgacattca	aacgctcctt	1500
attcttcttc	ctgctcctgt	ctccgtggcc	acagctcggg	cgcagataga	cgtcgatcgg	1560
gtgatcacat	cgggcgcaat	gctctctact	tcaacgacta	cgtggtgagc	atcgggtcct	1620
caaccaagtg	gtaggcctgc	gcccgtggat	ggcggaaacct	tatttcacgc	gggaatagcc	1680
aaaatcagtc	tggaagacta	tacaggggcg	gaagcgatgc	ttcggcctgc	ctgcagcgca	1740
atgcgctcat	ccccaaagca	tatctcttcg	ggcggtggca	cggcagaatc	tgggcaaaat	1800
cgattcagcc	attaggacta	ccgtcgcgga	ttggagctga	tgccgaacga	tgagggcacg	1860
ctgtgaatct	gaccggagtg	ctcaccgaca	gcaaacgcta	tgccgaagca	cggaaaggggt	1920
agccgaactg	ctcaaattct	accccaaaaag	caagcaagca	atatagctct	cagcgcgata	1980
gagctggggc	agcaggatac	cgtcgcagca	ttcgcgaact	gaacgaggta	cttcggatgg	2040
actctctctt	tgctcctgct	attcgcagat	ggccatgctg	cacctcaaga	gcaagcgcaa	2100
cgcagagcta	tggcagccct	ggacaaaagca	atagaattgg	agccgagcga	actgtcaact	2160
atatcaaccg	cggtgtcatc	cgctaccaat	cgaacgactt	gcgtgagcca	tggaacgacta	2220
cagccacgctc	ggttcgcaaa	agccgaacga	caagtggcac	gtttcaaccg	tgcccttgctc	2280
cgctcttacc	tcggtgacgt	gaaaatgcc	tcgaggactt	cgatgtagtc	atccgtcttg	2340
agccggagaa	cttcatgcac	tctacaaccg	tgccatcctc	ctcacgcaga	tcaacgagaa	2400
cgaaaagcca	ttaccgactt	cgacaaaagt	ctgggacact	atcctgactt	gtcgtcggct	2460
actatgctcg	ctcccaagcc	aaaaaggcat	tgggcgacat	cgggagccg	aacgggacta	2520
ctggcgcgct	ttcgacatag	aaaaagcgca	cagagcaaga	caaaaaaac	gaaaaaaagc	2580
agctcttcga	cttcgacaaa	gagacacgtg	aggatagcga	cgaaacgata	gagaagttca	2640
acctgccgtc	gtatccgaga	aatcctccga	gaagcgcaca	cgctactcca	gtcggtagct	2700
gggcggattc	aggacaacga	tgtagaggta	cagccctcgc	cgctttcgtc	ctcagctact	2760
acgagcagtc	ctcttcgcaa	gaggtgccgc	gcgctactac	tccgaagcca	ttgctcgctt	2820
caacgacaaa	aaggttctgc	ccagcgactc	aaaccgatca	accgtgaggt	agctctgagt	2880

caagagcagg	tgcatatcac	gaacaggaca	taacggaaat	atccgagagg	actgccggca	2940
tcgagatctg	tgcttccgtc	gcgcttttga	ctatatgctg	atacagaatt	ggagcaggcc	3000
atcgctcgatt	tcgatcaggc	tgtagagctg	aacaagcatt	tgccctcgca	tacttcggaa	3060
gagccattgc	acgtgccaa	ctggctcggc	ccgtcaggga	gcctccttta	tccaccaaga	3120
ggccgaaacg	gtgaatccat	gacaaaagct	ctgatcacga	caccgcgaac	caatgcaatg	3180
ggagtccggc	ggctgccgaa	tcccccgagc	gtaagcctgc	catatcggat	gtggcgggtga	3240
gctgggtgatg	cgcgacctga	accgcacgat	cgagctggat	ccgattttgc	ctatgcctac	3300
tacaatcgtg	ccgtgctact	ggccagacga	gggatacggg	tgctgccctg	tcggactacg	3360
accgtgccat	caaagcctat	cggagtttgc	cgatgcctat	ttcaatcgcg	gcctgctgtt	3420
gctttcgcgc	gaaaggccaa	agaaggcatc	gccgatctga	gtcggggcagg	cgaatacggc	3480
tctacaaggc	gtacaacatc	atcaaacgaa	tgagcacgaa	gtcatgattc	cgtcaataac	3540
ctgactgtcg	atttcggcac	ccgtctgctc	ttcgatcggg	atcattcgtc	atcaacaggc	3600
cgcgaccgtat	cgctcttgtg	gggaagacgg	tgccggcaag	agtacgctgc	tcaagctgat	3660
tgccggcatg	gaagaccgac	atccggacac	atagcacgcc	ccaaggggat	ccgcataggc	3720
tatcgccgca	ggtgatgcgt	ttgcaggacg	gacacacggt	ttacgaagag	gtcagcaggc	3780
tttcaacgat	attcgccaaa	tagaggaaga	gatacggcgt	cttccgatga	aatggccgga	3840
cgtacggact	acgaatcggg	tgactatatc	cactgataga	gcattatacg	aatatgagcg	3900
agaccctctc	tctcatgcag	agggcaacta	tcatgctgcg	atcgaacaga	cattgatcgg	3960
tctgggcttg	gccgagagga	cttccaccgc	cccacagccg	atctcagcgg	aggatggcta	4020
tgccgtagata	cttggtccaaa	cttctgctcc	aacgccccga	agttttgtgc	tcgacgagcc	4080
gaccaatcac	ctcgacatcg	aatccatcgg	ctggctgagc	agttcatcgc	caccaatgca	4140
ggagccggtta	tccgtgtgtc	gcacgcaggg	cattcatcga	caataccacg	acacgcacta	4200
tcgaaataga	actggacata	tatacgacta	caagaccaac	tacagccact	atgtggagct	4260
gcggaagagc	ggctgcgcga	gcagatgcgt	gcctacgaga	atcagcagaa	gagatccgcg	4320
atacggagga	cttcacgcga	cgattcagat	acaaggccac	gagtccgtac	aggtagacag	4380
ccggatcaaaa	cagttggaga	aagtagagcg	tgtagagatg	acgagcggga	tcgttcggca	4440
tttcaacttcc	gcttttatccg	gcacagcctt	ccggcagtta	tccgctaata	gtggatgatt	4500
tgggccaagct	tatggcgatc	accaggtggt	ttccggagct	acatacacca	tcgaaagggc	4560
gaaaagggtgg	ctttcgtagg	caaaaaacgg	gccggcaaaa	gtaccaggtc	aagtgtatca	4620
tggggagagct	gacagactac	accggcaagc	tcgaatgggg	cacaacgtgc	agctgggcta	4680
ctttgcccac	aacgaagccc	aagactaaga	gggatcttca	cggtattcga	cacgatagac	4740
cgtgaggccg	tgggcacatc	cgtctgcgcc	tgaacgattt	gctcggggct	ttctctctcg	4800
gggcgaagca	tcggaaaaga	aagtaagtgt	cctgagtggg	ggagaacgag	ccgattggct	4860
attatcaggc	ttttgctaca	gccggctaac	ttccttatte	cgatgagccg	accaatcacc	4920
tcgatatgcg	ctcgaaggat	gtactgaaaa	ggcgatcaag	aacttcgatg	ggactgtcat	4980
cgtagtatct	cacgaccgga	gttctctcat	gggcttgcta	gcaagggtga	tgaatttgca	5040
gatggacggt	gaacgaacac	ctcggaggta	tatacgacta	tctccggacc	cgccgttgca	5100
gacgctgaca	gagctggagc	gaaccactac	gatcgaaaca	aaaacacacg	ggaggctata	5160
cctgaaacgg	aagccaaagc	ggactaccgt	cggcaaaagg	ggtagccaaa	cagctgcgca	5220
cgttggagcg	aaccgtagca	accgcgagga	gcggatcggg	aaattggagt	cgggaattaca	5280
ggcaatagag	atctactgca	agatccgaaa	catgcgactg	acgcgaatct	gttcgagcga	5340
tcgcccggcat	gaaacaagaa	ctcgaaaagg	ccatggagga	ctgggaacag	cttccgaagc	5400
tttatccgaa	gcccaaggat	aagctcaacc	tccccctctc	ttctctctct	ctttaccaag	5460
agaccatctc	accaccaatc	tattagaact	gagacaacct	ttcgccatcc	gtccgaaagc	

(2) INFORMATION FOR SEQ ID NO:733

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1037 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1037

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:733

cgcgaaaatt	ttttcgttgt	ggcgcgagaa	gtaaaaat	ttggaaccaa	acgaaaaatt	60
tctcgcgct	gttttcgcca	aaacacgcac	cgcaatccac	cgtttttggc	tcgtaatctt	120
ccgacagtag	gaagctcttt	tcacggtcgc	tgtagctcct	tgtgagaaaa	taaagatatg	180
cccgaagg	aaataaat	ggatttatta	ccggttacgg	cgcggaatac	tctcttctct	240
ttatttcttt	gccggaagcc	tgaccttttt	tatccttgca	ggcaatccta	atgagaagat	300
actaccacac	gttaccaacg	aaacggctcc	cttgcgcaact	gtctactggg	gttgccggat	360
tcgaccggcg	gagcacctgc	tctcgccgac	actacgatgc	caagagttat	gaatccgtgt	420
tacggggcac	ttatccttcg	gcgaggatat	caagatagaa	atggatgccg	tactcgatgt	480
actggtgct	atggcataga	ggtgctccgt	cccgagccga	tagcaaaacta	caaccagatt	540
ttgcccgcga	tgtggctttt	gccatcgatg	acaaactctt	cgtatcgacc	tgatagccga	600
tcgtgcccgc	gagtcggaag	ccttttcgcc	catttggtat	gtgtcggaga	gagccatctg	660
gtacgcctta	gcgaagatat	tcatgcgaag	gcggagacat	cctgtttatat	gacgatattc	720
ttttcatagg	cacctccttc	agaaggatta	tccttccttc	aagacggccc	gaaccaatgc	780
acggctgtag	acttcttccg	cgaatttttc	ccacacaaga	ccatcatacc	gatgagctga	840
tcaagcacga	caccgatccc	atgcgctcgg	tgctccacct	cgctgcgctt	tccaaccgct	900
aggccgcagc	cgcgccatag	tctaccgcca	agattcctgc	actctgagag	cttcggcctg	960
atcacagaga	tatcggtggc	gggacaacct	gttcgagatt	acacccgagg	aagctatatg	1020
atgaatacca	tatat					1037

(2) INFORMATION FOR SEQ ID NO:734

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 583 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...583

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:734

ggatacgtcc	ggagaagggtg	gcagcagtg	taagcagggc	agctccgatt	attcacctcg	60
aaacggaacg	agggtgcccc	cctgtgggtg	caccctcggt	gtacaggccg	gactgatccg	120
gcttagagaa	ttgtctccag	ttgatcggt	tcggatctac	tgcccgtata	atcccatgtg	180
cgtccaccag	gtaacttggg	aacggatctt	caagccatag	atgttgagca	tttgatcgcg	240
tttacatttt	ccaccagtcg	ctgggcagac	aagtctattt	ggtcgaaagc	caagtatttg	300
tgaataccga	cagggtttttg	tccatcgaaa	cacctacata	ccgacccgac	tgtcgggtct	360
tttggcaaaa	taacgagacc	atcggacatt	acggccctgc	tctctccatc	gtatgccgcc	420
cagaagtggg	tcagcgtgta	caagcagcct	ctgggctgcc	gtccgattgt	acgaccaaag	480
actttacctc	ggcaccgctg	cccctactgc	caagccatct	atggcttcgg	atggagaggg	540
gccgagctac	ccgacaaaag	caaggcagcc	gcgaccaatg	agc		583

(2) INFORMATION FOR SEQ ID NO:735

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1401 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1401

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:735

```
gcacggctgc acgaagggct tccctatccg attctttttt gatggccggg tccatttgat      60
cctgttgcca agtctgccgt agtcgggtatc gctgaaccca aatgggtgtac acagacttcc      120
gacgtgattc gcttttgtgc tgtggggtat cgttgccgaa gagactcagt tctttctctg      180
tcgatagatg caggattgca gacgggcatt catcctctcg gccagctcca ccgcttctgc      240
cgatggcggg aacaagcctc ttcactacgg atgagaggat ggaaatgtat gtccaatcat      300
tcccgtatth ggctttgtag tgctctttgt tggctcggat gattcctctt tttcacagtg      360
cgtggcgatg agcaggtcgc attctccgaa tttttctcca gcgtttcctt attgtccaca      420
agcatattgc cggtagatga acgaggaata gcttcagacc gggtagcaga tgcttgacca      480
cccgtttgat tcatcgatgt tgtcattcgt gccaccgaag aagaagccgt agttggccct      540
gccgtgtctg caccgatctg ccttttctcc agcagtcgct cccacatttg gtaggaggat      600
tcgtattggg catatccata aacgaagtga ctccgncgct actgctgccc ggctttcaga      660
ggcgatggta gctttgtgcg tcagtcgggc tcgcggaaat gaacttgggc gtctatacat      720
ccggggaata gcctcgaccg ctacactcta tgacttcata ggcgagaga ttgtcatccg      780
cgggagctct ccttcgataa tacgggagat aaatgcgcca tcaatcatca ccgaccggg      840
aagggttttt cctcgttggt gataagtgcg ttgcgaagaa gattttcatc tctttcgtac      900
tattttcttt tgggaaatcc tttgaataag tccagtagcg tagcttgatc acgcccgtaa      960
aagcttcacc gaaaatagaa tgttcatttt cgacgttccc aaaacacgat tgacgaaagt     1020
gatgggtatt ctttcaggcg aaatccgaga caataggccg tgtatttcat ctcgatttga     1080
aagcgtagcc cttgaaatgt accgaatcaa gatcaatggg ttcaagactt cgcggcggta     1140
gcaaacaaat ccggcagtcg tgcgcgatat attcataagg tcacgagacg cacatatacg     1200
gatgcgtagt agctcatcca tacgcacttt taggccagtc cttgacgcct ccgcccgata     1260
catagcgcca gccgtcgcta catcggcttc tctccggcg caggcattgt atagatcgat     1320
caattgtcta ccgggtggct gaaatcgag tccatctcga atatatagtc atccctcgcg     1380
cgatgctcca tttgaatccg g                                     1401
```

(2) INFORMATION FOR SEQ ID NO:736

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 768 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...768

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:736

```
ggacgatccc tcttccctgt gnaattgaga aaccgtacac ggctaccgag gtgatattat      60
ttgtactcat tgtttctaaa aagtgggtatt cataatttta ctccacaaaa atacaaaaga     120
acgagcggtg tatcaaaagg ataaaaaaaag gtgtgcaaaa atcgcctaata tgcgatttctg     180
acacaccctc tttccaaatc gatttaatta ttgtcttttcg ctaaccgctg aatcagctca     240
gtttgggatg attagaccgg aacgaagttt cggctcgaac caagtagtct tgggggcatg     300
atattgcccc aatcagcaat gtccatcagc tgtttcatcg ataeggataa agagcgagag     360
caacacgcat ttcgccactg tctacacgct tttcagttct cccagtccgc gaataccacc     420
```

cacgaagtcg	atacgcttgt	cgagcggaga	tctttgatgc	ctaagatctc	atccagaatc	480
agattcgaag	gacgtaaca	tccagtacac	cgataggatc	gttgatcatca	taggtgccgc	540
ttttgctgtc	agcgaatacc	atctgccacc	gagatagaga	gagaagtttg	cagcttggag	600
ggcgatatt	cttcgcgtcc	tttgattctt	acttcgagtg	tcgagacagt	ttctgcaaga	660
attcttcatt	actcaagcca	ttcagacttt	cactacccgg	ttatagtcga	tgattgtgag	720
ctgatcggca	gggaacatac	agccatgaag	tagttggact	cttcattcg		768

(2) INFORMATION FOR SEQ ID NO:737

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 431 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...431

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:737

gcatcgttgt	ccacggaggc	gggccattga	caggaacaaa	taccctgttt	tcagaatcag	60
agagttcgtg	tacggttgtt	cattggtggc	caaagcgcat	atacctcgta	cttcggtccc	120
catgcgcagg	tctgtgctgc	gaagtagctg	ccatatcttc	cagggcttgg	tgctgagggt	180
gattgtcagg	cactttctga	tgaggatttt	gttcggtgcc	aaatacttgc	cccaacagtc	240
cacatgttga	tatatctgcc	gttcggatct	tgtaccacat	catgatgtgt	gatgcgagat	300
agctttcatc	ttttgattac	ttgagcttga	gacagagagg	agtctccgta	tatgcgatat	360
gtgactgcac	agcggatcca	tatccgtccg	tctgtagtgt	ccaccggtct	gcttgagctt	420
catccccgaac	a					431

(2) INFORMATION FOR SEQ ID NO:738

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 561 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...561

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:738

ggttaccaat	ctcaccggaa	ctgcttccaa	tgacgaagtt	tctttggacg	ggacggtgtg	60
gaagagaaag	ctgaagagcc	ggcaagtgtat	aaagcagtag	ctacaacgtc	tacaagaatg	120
gaaccttgat	cggtaatata	gctgaaatca	ttatgtggag	aecggtgtag	ccaatggtac	180
atacatctac	gaagtgaagt	aaagtatcct	gacggtgtat	ctccgaagggt	ggctgtaacc	240

gtgacgtgac	caacagctca	ttgagcaatg	tagatggaca	ggctccttac	acatgcgagt	300
agaaggcaag	aagattattg	cggaagcccc	tggtatgac	acgtctacga	catcaacgga	360
cgtaccgtgg	ccgtagcccc	gaatcgattg	gatacatggc	gcaaaccggt	ttctatgcag	420
tgcgcttcga	tgtggggaat	aacaccatgt	atcgaaaata	caagtaagat	aaagcagata	480
ctttccctg	ctaaagacaa	agaggctgcg	tcgagattat	ttttcgatgc	agcctcttct	540
tttgctactc	atgccggtat	t				561

(2) INFORMATION FOR SEQ ID NO:739

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 419 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...419

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:739

aggcaataga	catagccgat	agtatgttga	ggaaagcaaa	ggaagagaag	aggaaaagga	60
aaagaagaaa	gataccgtag	ctatatccat	acagaaaacca	gtgggcagaa	gatagagttc	120
ctactgccgt	gtaagcatag	taccgatagt	gtaaacaaga	aacaggccta	tacaaaaagg	180
caaccgagct	tatacggctt	ttaaggaaga	tgacagtatg	ctcaacagtc	ttatctattg	240
gatagagatt	gttgagacaa	ttttcaccca	cgaggtaccc	tataccaaga	gcgacaatgc	300
ggcttgacaa	ctttcgacga	agatcacagg	agaacgaagt	gttcgactct	gaagaagtat	360
ccactccatg	catcactccg	aagatccccc	gcgttgaaga	caaagaacta	ctgcacgca	419

(2) INFORMATION FOR SEQ ID NO:740

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 398 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...398

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:740

gctcctgccg	taatgagctt	tctggagcag	cacaacctca	aaggcaagac	atcatccctt	60
ttgtcacaca	cggcggtggt	ggcatgggca	agtgtttgac	gaaatgaagc	gactggcacc	120
tcaagcgaca	atcctcgacg	gcacgtatc	gacggcaaga	aagccaaaga	atcggccgaa	180
gaagtccaca	acagccgaaa	gcgatgggac	aaatcaaata	acgacaacca	tccctactcc	240
agaccctgag	gaatgataga	ggcaagcttt	ccccacaaa	tcaaacacaa	gctcctaccc	300

tccccggttc ttttccccca caaaaagagg cgccatccga cgctcttttt tataaccaat
aaccaccaaa tacgcaccaa aaaacttttc aaaacgaa

360
398

(2) INFORMATION FOR SEQ ID NO:741

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 611 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...611

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:741

acgacctccg	gtacgatggc	gcacccatgc	atatcaggcg	gttttccaat	tgcccgtttt	60
ggggggcgag	tcctgcccgt	tcgttatcag	tgagggtgcg	agtctctggt	ggttttgcag	120
gccaattctt	ccctgacagc	atcgcttttc	ccgttaagac	tgtcggggat	aagaccattg	180
agttcgtggc	tccgccaagg	gtcaggatcg	taggactatc	aatacgtttt	atgccgtgga	240
cttgtagagg	cttctgctcc	ggagatcctc	ggagcgggtac	ccaatcaaaa	cctgatggag	300
aggaaatccc	tgatctgata	attgtctcta	ctcaggcgct	cctcttgagg	ctgatcgact	360
ggccacctat	cgtagagaga	aaaacgggct	gagggttttg	tcgtgttgca	ggaacagggtg	420
ttcaacgagt	tttcgggttg	actcccgatg	ctacagcata	ccgcctcttt	gccaaaatgt	480
tctacgacag	tggaaggcaa	atgcacctgt	gggagagacc	ttccccgatgc	aaatgcttcc	540
ttcgggtgatg	ggctcatgac	aacaggaagg	tctccgtagc	ttggcagaac	cgtatctcca	600
acaaaacggag	t					611

(2) INFORMATION FOR SEQ ID NO:742

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 575 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...575

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:742

gtcagtgtc	tccccagtgt	attccttttg	gtcaggattt	gatcggttac	tcgattggat	60
tttgaccgtt	ttcctcatat	ctaagatcaa	aattaaactg	atgggggtgct	tcataagttc	120
atctccatcg	gatgaaactc	gtctgcgaaa	tccttagctt	cggggggtcaa	ctgtgtccat	180
gtaggtgtgt	gatccacttg	aaaccacaaa	agaatgtgcc	taggacatac	tgacaagcct	240
taagacagac	gttttcccac	tgccattgtc	gcctattaaa	aggttgactc	ctggagaaaa	300

aatagctcca	agtcaccaat	atctctaaac	tcttcgatgt	gaatctacta	atcataacct	360
acatatatta	caactagaca	aatatatata	taactcgaga	cctttgaaaa	ataaggaggt	420
ggaggcaggg	caaccgcatc	aaatgtaagt	acctgattat	caatcatagt	tttgagtata	480
tncttatctt	gagtataatc	tccgaaatgc	aatcatttga	aaattagcac	ctggattttt	540
cgaatttttg	atgcgttgcc	ctgtgcaagg	tctta			575

(2) INFORMATION FOR SEQ ID NO:743

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 550 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...550

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:743

ggctaagaag	gaagaggata	caaagggaga	gaaggggtgac	atgttttacgc	ggctgctgta	60
tattcggata	tggcgatagc	cttttcgttc	tcattcgcac	aatgggtgtag	acgggtgtcgt	120
ccttgacag	ctctatgagc	aactccacgg	gatgcaccga	agataagaga	taagaactcc	180
ggcagaacgt	tcgaacctgc	tatactgcga	acggggcctg	ccggaggagg	tgtctcgacg	240
aagctttgtc	cgtaccgttc	catttcgaac	ctgtcgcgat	gtttttgccg	gtgagagtgt	300
ttgcgactgt	gctgtcatca	tgaggccggg	gagcccccac	acacgatcat	cagactcttt	360
cttaaaaatg	tgttcatcat	acttttttat	ttgaggttat	gaataatggg	ctgtattatg	420
gtcgggaggt	cattcgccaa	agtccttggt	gccgtagagg	gtattgatcc	acatggcaaa	480
aagtttgtcc	tgacacaata	gaccttggtg	atctcgggtga	taatgtcctt	gtcgcagcagt	540
tgtttgcagc						550

(2) INFORMATION FOR SEQ ID NO:744

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1017 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...1017

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:744

cattcttctg	tttacttgca	gagccatata	ctgctcatga	tcttccctgg	atgagactgt	60
tgcattggagt	ttcattgact	ctttgctgca	gagctgatct	tagtgccttt	gggaaagatc	120
aaacctccgg	tatatggaca	tcgagcaaca	gaaatttccc	caagttttcca	ttagagaagt	180

actcctttcc	tcgtcaatag	gcgagaaata	agaaacgatt	gtcggctggt	tcttgcttcc	240
tgcacatgca	ggacgcgatt	gtcggctgat	tcttgcttcc	tgcacgatgc	aggagcgcgatt	300
gtcggctgat	tcttgcttcc	tgcacgatgc	aggacgcgat	tgtagctgat	tcttgcttcc	360
tgcacgatgc	aggacgcgat	tgtaactga	ttttgcttcc	tgcacgatgc	aggacgcgat	420
tgtagctgat	ttcttgcttc	cgcacgatgc	aggacgcgat	tgtagctgat	ttcttgcttc	480
ctgcacgatg	aggacgcgat	tgtagctga	ttcttgcttc	ctgcacgatg	caggacgcgt	540
tgtaactga	ttcttgcttc	ctgcacgatg	caggacgcgt	ttcttgcttc	ctgcacgatg	600
ctgcacgatg	caggacgcga	ttgtcggctg	attcttgcttc	ctgcacgatg	gcaggacgcg	660
attgtcagct	gattctgctc	ccatcatgcg	ctaactatca	gctatttgca	actattttat	720
aggactttca	ttaaactctt	tgccgcagag	ctgattctta	agtgtttttc	aggaaagatc	780
aaactcatgc	ataagggcac	caaacaaata	gaaattactt	gagggtttgca	gaggatcgca	840
tgaagctctc	ctttcttcgt	caaatacaatg	cttgtgtctg	tctgatcgat	atgaggaggt	900
gggaggttat	tgtagcaacag	tctctgagat	aaaagaatga	accatacga	gaggatacta	960
tggtcttcgg	agtcgtacag	tctataacca	aatccactcc	ataaagcaaa	gaangag	1017

(2) INFORMATION FOR SEQ ID NO:745

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 901 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...901

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:745

ccccggagcc	atgattgccg	atgcgggtaca	ctcggtgtct	gatctgctgc	cgatttcggtg	60
gttttcat	ttatctccat	ttcgggaaaa	ccatccgaaa	gaaccacgat	tacggacatg	120
gtaagtcca	gaccctcgcc	actgcgacat	tgctgttacg	ctgatcatca	tcggagctat	180
gctctgctcc	gatggttgac	caaggtatat	cgctatctcc	gctttgggga	cgaattggct	240
cgcccgatt	gatagccttg	cttatggcct	ttgtctccat	tgtagccaaa	gagtgctggt	300
ccgcataacg	cgatgtgtcg	gaaaagagga	aaatagtcgt	tcatcatagc	caatgcctgg	360
caccaccgta	gtgacgctta	tacctctgtg	gcactttcat	cggtattggc	tgtgcttttc	420
ttttggggcg	cggttggtatg	acctcgaacc	gctatcggtc	gctgtagtaa	gtgtctttat	480
catcaaggta	gttttcaaat	ggccgttcgg	gctttccgcg	atctgctcga	acagagcttc	540
cggtatgat	tgaagaagag	atagaaaaaa	tcatttggtc	ggaatcgagg	taaaagggtg	600
tcgtcggatc	cgcactcgca	atatcggtaa	ttactatctg	tcgaagccga	tattttgatg	660
gatggaggcc	tctctgtggc	actatccatg	ctgctacgca	gagggttgag	aagctgctgc	720
gtggacgata	cggccacca	cacatatagt	catccacgtc	gagccgtttt	catgatatat	780
gttgccataa	ccttttcaaa	ttctgtaaag	ctttatgacg	actgaaatca	aatggaagaa	840
atgcgttttt	atgcccgcga	cggtgtgctt	gagcaagagc	cgcaagtggg	ggaaccggtt	900
t						901

(2) INFORMATION FOR SEQ ID NO:746

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 447 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...447

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:746

gcaattatgc	ctaattctgct	tggcttttcat	ctgcctttttt	tttctcgatg	ctgtggtaac	60
aaaaatacat	ttcgtgtcga	agggtcgatt	gccggttaga	agacaccgca	caagtgtatc	120
tgaccaagat	cattgggagc	gatcttttgt	actcgattct	gtaaatcctg	accgaaaagg	180
tcgtttcagt	tttgtacaca	agcggactcc	acaccgtctt	tctaccagat	taaactcagg	240
aagcacatat	taattttgcc	gcaaggatcg	gacgggaaat	caacatacag	gtgggtccgta	300
acagcttttc	cgattacggt	attgaagaca	accaagggcc	tgaaattaac	aatattcgca	360
aggattggcg	ctattgaaag	agcaagcgga	tatcgtttgg	atcattttgt	accgttcata	420
ccaagagaac	aaactggatg	ctcgag				447

(2) INFORMATION FOR SEQ ID NO:747

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2593 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2593

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:747

tggatgatat	tgcagccggt	cgcaagtaca	tgaaagtgtg	caagcagata	aatgtacaa	60
cgatcccact	cttaatccga	ttcttttggg	caagaagtga	aagcgaccgt	tccccgcatt	120
catcattcct	tccttacgga	caactgcgtt	tccccgtttt	ttacctttct	gtcgtttctcc	180
catggctcga	tatctgtagt	ccgcttgtcg	gcaataggcg	atgtggcaat	gacaataccg	240
gtttttatgc	ggtagccaag	gcatacccac	agcatagttt	cacactgctg	actcgccctt	300
cctgacatcg	ctactaatca	accctccgaa	caatttggaa	gggtggggat	cgacatcaag	360
cacgaagagt	cttccttggt	cggctcttct	actatatcgg	acgactcaag	gatgagcagt	420
tcgactatgt	catcgacctg	ccaatgtaat	acgttccaaa	atcattcgct	tctatcttcg	480
ctttttcggg	tcaaagggtt	cagtctgaag	aaaccgcgac	tacagcttcg	gcagcttacg	540
ccaagccacc	caaaaagcca	acccgattgc	cttcctgtaat	agaacgatcg	ctcaggtttt	600
tcacaaagcc	gggcttgaaa	tacatccctc	ctacccctcc	ttctgaacga	ctccggacat	660
atctctaccg	aactgccgat	agtggaatag	gctccggaca	ccacctcatc	gggatagcac	720
cgtttgccgg	tcatgagcca	agacatatcc	gccggaaaaa	atgcacgagg	tagtgcgtag	780
ccttcggaga	gagacgatgt	gcagattttt	cttttcgggg	gtaaggggaa	agaaaaaaca	840
tactgagaca	gtgggcagac	gaatcgccac	gcacgtatc	cgtgccgggtc	tgctgtcgct	900
gccggaagag	ctatctctta	ttcatgcctt	ggctgtatgg	tttcaatgga	tagtgccaat	960
atgcacttcg	catcattggt	ggtacacgag	ttatctccat	ctggtgtgcc	acgcatccgg	1020
cagcaggatt	ctcggatatg	gtcagcgcat	agaagattgt	atcgagcgag	acttggtatg	1080
cggccttgct	ccgttttcgg	caataaaacc	tgcttccgca	aggattagca	tgccgtactc	1140
agattgaacc	tcaacttatc	attaacaaaa	tagttttcac	cttactgatt	tgaattcaga	1200
tgaaactgag	attaataaag	ctgatagcga	tgccggactc	ggctcccggc	gcgaagcaga	1260
gaaatacatc	accgaggaag	agtgaaaatc	aatggctcga	tcgctcgctt	aacggatttg	1320
gtcgcgaaaa	agacattggt	cttcttgatg	atattgacat	tcctatcaag	gactcattcg	1380

tgaagaaatc	tccctgcgca	aatatgagga	acggctcgct	cctccgcctc	caatcaaggc	1440
agacaggatg	aaaagcgaaa	gaatccgcgt	ctaaacaaca	caaagagggt	ccgtcgcaac	1500
gcaatgccgg	gaaacctcgt	ccgaaagcag	gattcgcaat	cgttgggaag	aaggtgatga	1560
ggatgatttg	acttcgatac	aggacgcggt	tttcggaaaag	gaaatagaaa	gaacgaccat	1620
ctgtaaaaaa	attccgacac	taagcagagc	ctaaaaagtt	gaggttagaa	aaaagaaggc	1680
gcagactcct	tggatatagg	agtcttgccg	ttcgctatta	tttctttag	aaatcgtatc	1740
tgcggtaaga	ctgttgcatt	ggagttcatt	gagctctttt	gctgcagagc	tgattcttag	1800
tgtcttcggg	aaagtcaaac	ctccggtata	tgggtaccga	gcaaatagaa	atttccccaa	1860
gttccatcag	agaagtactc	ctttcctcgt	caaataggcg	agaaataaga	acgattgtca	1920
gctgtttctt	gctccctgca	cgatgcagga	cgcgattgtc	gttgattctt	gctccctgca	1980
cgatgcagga	cgcgattgtc	agttgattct	gcttccctgca	cgatgcagga	cgcgattgtc	2040
agttgattct	tgctccctca	cgatgcagga	cgcgattgtc	agttgattct	tgctccctgc	2100
acgatgcgga	cgcgattgtc	agttgattct	tgcttccctgc	acgatgcagg	acgcgatgtc	2160
agttgattct	tgcttccctgc	acgatgcagg	acgcgatgtg	cagttattct	tgcttccctgc	2220
acgatgcagg	acgcgatgtg	cagctgactc	tgctccatca	atacgctaac	tatcagctgt	2280
ttgcaactat	tttataggac	tttattgaag	tcttttgccg	cagagctgat	tcttagtttt	2340
ttttcagatc	agcaaaaaga	aagagcgagg	aggtaatcca	actcacaacg	aatgtcagta	2400
aagcatcacc	agttctacgc	gccgattgat	acgaatagca	atctgcatat	tgccgttgcc	2460
agttcacgtt	cgttatggcc	gatataaggc	ttgctgatgt	ttctccaaaa	taatcatgtg	2520
tacccccgaa	acggcaattc	aatataccgc	aagagctgcc	tcgggataac	cggagttagg	2580
acttgcattg	tgc					2593

(2) INFORMATION FOR SEQ ID NO:748

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 459 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...459

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:748

cgttcaggcg	aaacgaaccg	acaagaaaagg	acttgtgcct	gtcatcgggg	catctcagtg	60
ggcagaaccc	attcaggctt	ctccaccaag	tgcaagaccc	gctcgctctt	tgggacagcc	120
gaaaacaacg	gctcatcggc	aagagtgaat	ggcgggtgtcc	gtcaatcaga	aactcgggtga	180
atgcaccgca	ctcatcacgc	acgctttcac	gaactctgtg	aaaggaaaaga	aattttttacc	240
gccacgacgt	gagggatgcc	tatcaggggc	aaatccacca	ccaagccctg	ctctggagag	300
tttcgggagag	tatctcacac	agacaaaaga	gcgcataagg	attacagagc	tttgaagacg	360
ttcaaaactcc	gtacctacca	gctctccctg	ctcgtgagta	tgtacaaaag	aagcacaagg	420
taagagacat	tcccctttca	cgttggataa	agcctttat			459

(2) INFORMATION FOR SEQ ID NO:749

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 888 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...888

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:749

cttttggtcc	atacttatag	atactcetta	ggttgcat	ttttttaccg	tacaagcctt	60
cgaaagtatt	catggtcaga	gcggcatata	atgattaaac	atataaaaaat	aatccatca	120
gcaagattgg	ccttgctgat	ggataatgta	ggaagagaca	taccaagccg	acgaaatcgg	180
ctgcttgct	cacttgccga	ttttagccac	gaggctcgcg	gtggtcacga	tcaccaccac	240
gacgtcgaag	ttacgacctc	cttcgcgtcc	tccttcacgc	cgctcacgcc	gctcctcggc	300
tgaggctcca	cgtagccttc	cggtttttcc	agtagcacct	tgcgctgagt	ttgaacttgc	360
cggctctcgg	atctatatcg	agcagcttaa	cgtgatggat	tcgccttctt	tcaggttggt	420
gtcctcgatg	gtctcgaatc	gttccaatcc	acttcggaga	tatgcagaag	tccttccttg	480
ccggggagga	ttcgacgaag	cagccgtatg	gcatacacact	tgtgatcttg	cccggatagt	540
ttctccgact	tccggcatag	ccacgatgcc	cttgatcatg	ccgattgcgc	atcgatgcag	600
ggtttggttcg	taccactgat	ctcgatgaca	cccatgcac	tacctcttcg	atgttccactg	660
tggcaccact	cttctcctgt	atgcctggat	gatctttccg	cccgggccta	tgactgctcc	720
gataaactcc	ttgccatatg	catcttctcg	atacgcgng	catgaggcta	tgaggctatc	780
tccttctcgg	gctgagcttc	catgatcttg	ccgaggatgt	gtaggcgtn	ttgttggtt	840
gctccagagc	attctccaaa	atctcataag	ctgagaccat	cccttga		888

(2) INFORMATION FOR SEQ ID NO:750

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 465 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...465

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:750

aaaaagcaaa	tgccgggtatc	acgggttctt	cgttgccgggt	ataggatgca	tgagcgaagc	60
cacaaatagc	agaccataga	acaggagcaa	ccaatatgcc	atcctttgcg	ccctcctatg	120
ccatagagtg	gaaatttttt	catattctca	ggggagaata	tcaatcagtt	tatgaatgct	180
tgctgtgtcg	agtgtccgt	cagagagaag	cgcaggcgag	ccgtgtggag	aggcacggtc	240
ggatgcgtat	cgggagtacg	aagaagccat	tgtcctgaag	atgttcggcc	aacgaatgca	300
aggagcattt	tcgcctacca	tatagggaat	gatgtgactc	gatatggcat	ttctatgcct	360
tttcccttga	tagcatcacg	caaaagcgta	gcgaatcctc	cagccgcttt	ctctccatca	420
caaactcagg	tagccgacgg	atatcagatc	agtccatcct	atcgt		465

(2) INFORMATION FOR SEQ ID NO:751

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 510 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...510

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:751

gattgttttt	gatttatata	tagatcgttt	tccattttata	tatagatcga	agtcatttgt	60
atataaatcg	aagaccgaaa	aaggcccttt	cggaaagctaa	ataaaagagg	caccgcgacg	120
attcgtaggc	gaaccgtgcg	ggtgccttgc	ctttaggaga	agtattaaga	gggtttattc	180
ctacttattc	gtcatagggt	ttatactggt	tgtccgaata	tcgaaatgac	atggtagggt	240
atggggcgaa	aggatcggcc	ggaaagatcg	gggtataaaa	ggtgttcggt	gcactgttct	300
gttatagtct	attatccatg	tagttctatt	caagcaatcg	gcttctcggc	agcgacatcc	360
aacttccgac	agagagcttc	atcgggcgac	aatgtaagaa	aatatggttc	atccgacatt	420
cagcgtgacg	gaggcgtggt	gaaggcatag	agtcttaggt	tgaagtattg	ntgatctcta	480
aatccatatg	cactcttttg	agtacctttt				510

(2) INFORMATION FOR SEQ ID NO:752

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 128 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...128

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:752

gccttaaaaa	gccaaattcc	gcagagagtt	agttttcggt	agttcgaatt	gattcttcga	60
ccaaggtcca	atagagcctt	atagtttcgg	atagaaatgg	acataatcct	aatttgatag	120
cgttttta						128

(2) INFORMATION FOR SEQ ID NO:753

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 268 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...268

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:753

aaataaaaca	cactaataac	caatgtgttg	tgccattcct	ttatatcgac	tcacgttaag	60
aaaagaccaa	tggtcataatc	gcaaaaaatgc	cgtacaatgt	ctctaataag	ccccctgggc	120
gatgttgtag	ttctttctcga	tggcatatttg	ctccggggct	gccgaggtat	tcttccacaa	180
tgtgaagacg	ctcggatcgg	tcaaatgttt	cgacatgatt	actgcttttt	ttgacctctc	240
cgattcgtag	acgtcagttc	gtaaaaat				268

(2) INFORMATION FOR SEQ ID NO:754

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2560 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2560

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:754

actaccggtg	gattccggtg	aaactactag	tagattcttc	caaaaccaca	gtagttttgc	60
ccgaaaccac	tagtagtttt	ctctgaaacc	actagtgggt	tattacgcgt	taaaagagta	120
ttgtcgtgtg	ccgaaaaaaa	gatggtatca	ggggcggtta	atttcattct	ggttcaacac	180
cgttttaggag	cacgacgatt	aggattttaca	cctgccttcg	atgaatatcc	tgccgatttg	240
cttggtttcca	gcataatccat	atacaaaaaag	gccacccttt	cctatgaaaag	agcgccgtat	300
ctgtccctgt	ttctaacctt	acctgaaatt	attcggcagg	atgatagctt	cagaagggca	360
tgctgcagca	caagtgccac	aatcaataca	tgatcagcat	cgattttata	gatgctacct	420
tcagagatag	ctgataccgg	aattcatcga	tgcattgatcc	gcattgctaca	caactgtcat	480
taataacgta	gccatagttt	tgtaatatgt	ttatggtaag	acaaattttg	tttatcgtac	540
acttttgtga	aacaaaggta	gaaagaaaac	cgaatatacc	aacatgtagt	atgcgaattt	600
tctactgcat	ttctattgaa	tagagttaac	ttattgattt	ctccgatttt	acgaggtttt	660
tgaagagatt	atgagtaata	agcattgaga	aaagtagtct	cgagggtcga	cttaaaccgc	720
aatgaatacc	tataggagct	atatatatgc	ttgttgctcg	caatcatccc	tacataaaaat	780
tggccgagat	caggtaagag	gaatgagacg	aaataagctg	ctgtttactt	ttcttttagca	840
ggacttgctt	agtagagata	gcggaagaga	agaaagagag	aaaaaatccg	agaaagcacg	900
acgaaccggt	gcggaagaag	aaaaatcatt	accatcaata	gaacgctgta	ccatttctct	960
tggaatcgca	catagccggc	taccctaaaa	cacctttcat	actaccactc	ttgagggtatg	1020
cctctattgt	tcgtctttca	tgaagtcttt	caccgtaccc	tctcttctctg	cgagaggcgg	1080
ctattcaaga	acgaagtggg	aacaagatcg	ccgcgactga	tcatatcatc	agtatttggc	1140
tgagggcatt	cgggctaaag	cgatttttac	gggaaaaccg	gatccatccg	aaagagaaaat	1200
gtcgggtatg	tgcaatcctg	tttggaagtc	caatagtttc	ggatgacgga	cagaccacgc	1260
tctgttgtag	tacccgatga	ttcttcgatg	caagggggagc	caactgtttg	acaaaagcct	1320
ctgaaaatga	ttcagactac	ggaaattcat	caccgcgacc	aatgaatcca	atgaagggat	1380
tcgtagatta	ataattcttg	agtgatcggg	acggccttgat	agaggcacgg	cacttccctt	1440
ggcacagagt	gccggcagca	gacaataagc	tttggcccat	gcagctccgt	atagagcagg	1500
atcgggcaaa	tccgtcttgg	gcggtaggaa	acgatatttg	tcggaaggac	tcccgtaagg	1560
gttcgcttag	atccatccct	tcgccatagc	atccggcagt	atccttttct	cggtggatac	1620
ctcgattctg	ttttcccacc	gaacctccgg	atgaggaggc	tctattttcag	gatatgagct	1680

tcggagcctg	ctttgcctgt	agcaaggatg	acatcattct	attatcattg	atgttaaadc	1740
catagacgcc	ggcaccgaaa	tagtgccttt	gtcttcacgc	agccaactgt	cattgactcc	1800
ctcaatgtca	aaactgatgc	atcgacgatg	atatctcctg	ttatttcttt	tatgccccat	1860
tgttgacggc	atcgaccaaa	gcataggcaa	atcgaccgga	gtccgtcggg	aatagttgga	1920
tgcgagagaa	ggatctcctc	ctcctttgat	gatgagatta	cgccaagaat	cccttttcga	1980
atttttccat	ccatgccgac	tccggtataa	atgggtatctc	ggttccccctc	agacgcaaaa	2040
tggaagcaga	ggttacgact	taaccagaga	tgccggacaa	aactgttcgt	ctcttcgatt	2100
tgatacgaaa	ggctatcgtc	ccgacagcga	cgtatctcca	cgccgatacg	acttttgtct	2160
gtctctcagc	tttcttgatg	atatctattg	caccccgatc	ttgtgagaaa	ggctctgccc	2220
gagaattgca	aagagaagaa	atagaagata	ttgtttaaac	cccaatcggg	cgtagagatt	2280
ctcctttgtg	atttcatttc	tgattcattt	ggaatgtttt	gagcatttgc	tacttcttag	2340
aattgatgac	tgcaacttg	ttgtttgatt	gcttctatca	gtttgtccgc	aagagcaaat	2400
tacgaaacca	atgctcagat	tttgaataat	aaccggaatt	aagaatatca	tgagaaaaat	2460
aatacgaatg	gaaaaaggct	gtgtggagga	aaaatccacc	agcctttttt	tatgtctacc	2520
tgaggagtat	tctcaaataa	ggggcctttt	tgagaatttt			2560

(2) INFORMATION FOR SEQ ID NO:755

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 388 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...388

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:755

cagacttttg	gcgttgagct	gtatttgga	gccggcatcc	gtgggtgttg	atcggttcta	60
tccttgca	ccgtgacccc	gtgacgaagg	agaaccgcat	ccgcgtctcg	agctcctgcg	120
tctggctatt	ccgcgtcgta	catatacaac	aaccacatgg	atgttatcgc	tgctgcggta	180
aagaatgtat	acgacctcgc	gaaagcatta	cacgtggcta	tgtgattaca	tatgagaatc	240
caatctgcgt	cacttcactg	ttgagctgga	aaaagccaag	taagcggtaa	gaaactgtat	300
aaagaaaacg	gtaaggagg	ttgcttccat	gtcgagagac	cagggaagca	actttctttt	360
ttttgtgat	aaaaagggtt	tttgtttc				388

(2) INFORMATION FOR SEQ ID NO:756

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1151 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...1151

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:756

tctcaatttg	aatcttgaat	ctctgacaat	atgaattcgt	acttgtttta	taattgaatg	60
tagcaatcat	gagcttttaga	tgtacgttag	tggctgaatg	cgattgccct	gttacaaacg	120
gacttgatac	aacattttcc	ctactttgcg	ttagtttcct	atagtaataa	acaacactat	180
gtggcttttg	gagaaagtca	tgtaaaagta	atltgaccga	aggctttgtg	ggatgtttcg	240
ccgaggattc	aagaaggcat	acataaaagcc	ctcagtttgt	gtagcatgca	atgaagagta	300
tctcaagggt	gcaatagtcg	gtttgacgcc	gacaaacctc	gtgtcgagt	tgcgggagtg	360
ggttatgatg	tgaatgtctc	gctcaccact	tatctgccta	tcaggggaag	aaagagggac	420
ttatttggt	tacacaactg	accgagaaga	tgcccattta	ttgtatggct	tttccacgaa	480
agaagagcgt	cgctcttcgg	ccaactcaca	tctgtcagcg	gtgtcgggcc	tacgacggcc	540
agctcatcct	atcttccat	gctcctcaag	agctggccgc	actcattaca	cagggcaggc	600
cgatgcgtg	aaagccgtga	agggcatcgg	tctgaagccg	ctcagcgtat	catcgtggat	660
ctgaaaagta	agatacaact	ggaaactcct	cagacgagat	cttgtctgca	cggacggctg	720
taggagatgc	tgctcgaata	ccatagcttc	gggagaagaa	gccatcagtg	ctctaaagat	780
gcttgctttg	ccgatccggc	tatacgcaaa	gcggtcaagt	ccattctctc	cgagattcgt	840
ccttagctgt	cgaagatatt	atcaagcgag	cattacgaat	gtataacctt	ttctcaaaca	900
aagaaggatc	acgggtgtct	tgataatgga	aagaaaaaca	aaccattcgc	gctacttgca	960
gctctactgc	ccataatcgc	ggccttggtt	tggtcacatg	gcgtccggcg	agtggctccg	1020
tacctgcccg	actgccatca	acaatcacta	tacaactccc	actccggccg	atacgactgt	1080
ttccccgtca	agaagaccca	agctaaagac	taccgttatc	tgggtggaac	tatccactcg	1140
atctgaagac	t					1151

(2) INFORMATION FOR SEQ ID NO:757

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 624 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...624

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:757

tctctttgac	agagtatatg	tctctgctga	gagacggttt	cgtcaataaa	gccggtaaat	60
cgccctcct	ctctgcgaga	ggcgagaaat	cctgcaagaa	tggcgaagcc	cttctctctc	120
cttcttgtag	tacacttttg	ttcttcgatg	aacaatgtca	atgatcgcg	tccgactgcc	180
ccctcccca	tctccgatcg	aagcccttca	tgtggcggac	agtgggtgca	aaagtaaaac	240
cttttccgaa	tcgcaaaaat	caatcgaatc	ttttttcagg	gctgacgctc	aagaaaagct	300
cgtcgcctga	tcttccccct	aaaaaaagaa	tcccgcgcgc	ctcgcggaac	aattcctcta	360
tcaatcgggc	agcaatcgct	tttgcggtca	caaagtacgc	cttttttctt	tacagacaaa	420
tctttcaaaa	tctttttctca	acggttcgca	aaaaaaaaaac	agcccccgaa	gaaaaggact	480
ccctcccaag	aagacaaaaa	aagaagcata	tatataatat	agttcgcgcg	cgtaagagaa	540
cccaaaagga	gcgcaaaaaga	aacagaatga	gaagagaaaa	aaaattctcg	caaaagactt	600
ttcagtccca	aaaggcggcc	ggct				624

(2) INFORMATION FOR SEQ ID NO:758

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1239 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1239

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:758

gaggatcccc	gaaattttct	cgttttcccg	gtcccaaaat	ttggagcaca	ccgtttttgcc	60
aagaatgtgc	tgacgctctg	tcgcacggca	aatatcgcaa	actgaatccc	aaactgccccg	120
agctggaaaa	ggctatcgaa	atggaggttt	ggctctgaat	ccgcccgtcg	cgaacgagct	180
gacgcctcag	gtcataccct	cgacgaggaa	cgcgacagag	cctatcaggc	gctgatgtcg	240
cgcgctgttc	gtatgctttc	gacgaggaca	gccagctgcg	caacgcggca	gccaaatcga	300
agacgtggcc	gctcgctacg	gcaacgtgat	ccgaatgaac	tatacaagga	gacggcccg	360
atagagaatt	tcctcaccga	tctcaagggc	gaaacattcg	ccccctcgta	acgaaactcg	420
gcgtgacggc	actcgttgac	aactggaaaa	gaacaataag	gccttcgccg	acttcttct	480
ccgccgtctg	gcaccgacca	acgaggcaaa	tatgacgtga	aggcaactccg	tgccgagacg	540
accgcacatt	ggtagccgtg	gtgcgcgcga	tggactccat	cgacgacagg	agccgagccc	600
ggagatccgt	gcgctcatcg	agctctacaa	ccgactctgg	ccaatcgccg	cgccctcttg	660
gctcgctcg	ccagctacgg	agaagcgccg	tggagaagcg	tcgtgcccag	atcgccgaga	720
tgetccgccc	cctgccgccc	ggatcggtga	ggagaagaag	acggccgtct	ttgccgggtcg	780
cacctcgcca	cgggcaagaa	ccgccactat	ctcatcacat	tcgtagccga	gaaggcgacg	840
aggaggatcg	ctggtaccgc	atcaacgggg	agcaactcgt	cttgtgcccg	aagacgaact	900
ccccaaagccg	aagaaaaaga	agaaacccgc	agcagcacgg	acactccatc	cgagccgccc	960
gtcctgccgg	atccatcgca	ggaggcagca	gtagcgggcg	tgccgagcaa	ggctctaccg	1020
gcggcggaac	tgatcccccc	gtgccgtcct	gccggccgca	gcagcacagg	caaccgagat	1080
aaaagacaaa	ggggctgtga	ccaaattcat	ttttggcaca	gcccctttat	attcgaaaaa	1140
ttaggtgtta	gccctgatta	gcctttttct	ctgnttcaaa	ctatgtctaa	agaaaagtct	1200
atgctaggac	ttanccaaca	accgcttttc	ttactttg			1239

(2) INFORMATION FOR SEQ ID NO:759

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 504 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...504

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:759

tctaataacg	tctgtgtcgc	attgataagt	tctttaatct	catcacaacc	cgttctttga	60
agtcgctttc	attaaatagt	ttagattttg	aaaatacaca	tttacattgc	tttgctgtgc	120
tgaggattta	acagcgtcaa	gatactttgc	aattttatat	catcttcac	ggatgagcaa	180
gttttttagca	tatctgtact	acatcgctaa	attcacgcaa	gtaattctct	gcagattctt	240
cttgcttacc	ttcatatcac	tctcaaactg	ttcggagtcg	tttctattgg	tattagtagc	300

tcaaattggt	tgatgtattt	agcctttcca	ttaaaacgac	tagaatagca	tctaggggtga	360
aggtttttcc	tgtagaacgt	tttccataca	tatattgaga	cccgttgata	acttttgtcc	420
attcggaaat	attggaaaaa	gtttattcct	tcttccgaag	tcagtgatac	tttagtctta	480
tccattagac	gagtttcagt	gttt				504

(2) INFORMATION FOR SEQ ID NO:760

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 525 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...525

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:760

ggcgaatgtc	tctttggttg	gacgacaagc	agatagggat	agccgatagc	cgaattccaa	60
gggcgacaca	acgtctcggt	tctctgcac	gctctcgcg	ttccaggcac	acatcatttg	120
ctgctcaaga	gcttgcttct	cgaaggcata	ccactgctac	ggatgtgcgc	gtagtcttca	180
agccgaagac	cgctcggatt	cgtcggctct	ctatcccaac	tatacgggca	aggagcggct	240
gagcccaagc	acatgatgag	cggcacattt	ctatcgggag	ggagtctctc	tccacgggca	300
agtatgtact	tacttcttat	cgggtaagca	gggataataa	gccgctgtga	cctataacca	360
gctgcgcgat	gccaaaggaa	atatacctgct	catctgaacg	aaaaagaggc	ccttggttgg	420
atgccgcgat	aagatatgct	gtggtgattc	gcaaggaagg	aaatgcgaag	cgtttggttg	480
ctttcgatcc	atggggaaag	gtgaaaaaac	cttgggtgtcc	caatt		525

(2) INFORMATION FOR SEQ ID NO:761

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2474 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2474

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:761

aggatccccg	aaattagggg	ttgtaacttc	tatatcgtga	cagtttctac	cccatagatc	60
acaatcacac	cccggactta	cggccacttt	tggcagccgc	gaaacaattg	gaaaggtaat	120
cggccaagga	gatgtggtgg	tgtacgaagt	acgggtgtatc	ccggtgtaac	agaagacgaa	180
tgtattccga	ttatcggaag	gtttcgggtc	tcaaatacaa	tgtggacttc	tttgccggat	240
acagtccgaa	cgaatcaatc	cgggagataa	agttcacaca	gtagagaata	taaaaaagtg	300

acatccgggt	ctactccgga	aatagccgac	tatgtggata	gaagtataat	accgtgttgg	360
tcaatggcac	acacaaagca	tcttccataa	aattgcagag	gcttcaaaaa	tcatagaaaa	420
cgcccaacga	gatgtaaaca	tgcatttatg	aacgaaatcg	cgaagatttt	caatgcaatg	480
gacatttgata	gcacgaagta	ttggaggctg	cagctacaaa	atggaacttc	ctacctttta	540
gccgggcttg	gtcgggtggc	attgtatagg	ggtagacccc	tattatctat	tcagcgagca	600
caggtatatg	gagtttatcc	tcgggtattg	atgtctggag	aaggctgaat	gacagcatgg	660
gctcctatat	agcctcgcaa	accatcagca	aatgaataaa	gcaggcatca	tggtgaaaga	720
tgacgaatt	ctgatttagg	atttacattc	aaagagaatt	gtccggatat	ccgtaatacc	780
aaaggataga	cacgtacagc	accctgcaag	aatacacgaa	aaatattata	gtaacgatcc	840
ttgggcaaat	ccttctatcg	ctgagcaagt	atatggaata	aaattcacia	tgaattccct	900
aaaggaaaat	tcgatgccat	tattattgct	gagcgcatag	agatttttcg	aatatcgatc	960
tcgaaaaatc	atccacagcc	acaccattat	ctacgatgtg	aagggcattc	taccccaagg	1020
gaaaaagtgc	acaaactgta	gtgtatcact	cctaaaagaa	aaatcctaca	gacagatata	1080
ggtctgcaaa	ccacaggggg	gcttcccttc	tatcttaccg	gcatactttt	ctcgtaaaatt	1140
tttcatcggc	ctcagatgaa	tgtcttacgc	aaaccgagaa	agaaacgttt	ttatctgaca	1200
ccaatgattc	tgatgatcac	agtttcaaga	gagctgtttc	ctaaggaatt	agtttgccga	1260
tatgttttat	ttggaccttt	gcgctggcaa	aaagatgcac	ctatgcatcc	aatgactgca	1320
gaaaagaaaa	attactaata	actaaccac	ttaaaccattg	gttttctcag	ataagaagca	1380
caatttcacc	gcaggaccct	gtatcctcaa	tgacttagtt	tgaaagatgc	tgcatcagca	1440
tgtctcaatt	ttgcaggaac	gggtctttct	ttcttgaagt	ttctcaccgc	gacaaaagag	1500
tcgatgctgt	aatgctcgag	ctcgcaatct	cttcaaagaa	cctcttgatg	tgcccgaagg	1560
ctatgaagac	ttttcctcgg	tggtggcgcc	agcctccaat	tctaccaagt	accgctgacc	1620
tgctaaagaa	gaaagcagcc	tttatcaaca	ccggtacatg	ggcaacaacg	ccatcaagca	1680
ggccaagatc	atgacgcagg	tatatggtgg	agaagagagg	ttttggcttc	atctgaagac	1740
aagaacttct	catacatccc	caagatttcg	ttattcctga	ggacgtagat	tatttccact	1800
tcacgacaaa	caaacgatct	acgggtactga	aattcgtaa	gacttcgaca	cgaagactcg	1860
cctgtagcag	acatgtcttc	cgacattttc	tctcgtccga	tagacgtttc	cagtatgacc	1920
tcattctacg	tggtgctcag	aagaacatcg	gtccggccgg	gctactttcg	tatttggtaaa	1980
aacggatgtg	ctcggacaag	tagatcgtct	ctacccgata	tgctgaacta	tcagatccac	2040
atcaagaaag	actctatgtc	aacactcctc	ccgtattccc	cgtttatgta	gcaactccaga	2100
cgatgaatgg	tacaaagaac	tcggcggtgt	gaagggtgtg	gaaaagatga	atctggcaag	2160
gcagccctta	tctacgatgc	catcgacagc	agcaagatct	tccgcgcacg	gttaatcctg	2220
aagaccgctc	tatcatgaac	gcttgcttcg	tgataaggat	gagtacaaa	aactggagaa	2280
agagttcgct	acgtttgcag	cttacgcggc	atggtaggta	tcaagggaca	ccgctctgta	2340
ggcggtttcc	gccttctctc	tacaacgcac	tgcttatcga	aagcgtacaa	tctttgggta	2400
ggtaatgaag	gaattcgaag	ctaagcacta	atcgtgaata	aattgaaaga	ataagatgat	2460
tgccccgattt	cgct					2474

(2) INFORMATION FOR SEQ ID NO:762

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 656 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...656

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:762

atttgtggcc	aaccgcgttt	gtatcccaaa	caatcctcgt	tcttcggagt	gatcaagtgt	60
tcttttgcg	gtgaggcaga	gaaaatcgca	gagctggagt	cgtgatgcgg	cgcgactatg	120
gagacaaatt	gaatatattc	cgctctttga	aacgctgctt	gagtgccttc	cgcccgaggt	180
gcagaagata	aaagcctatc	cgacctcttg	gacaagctgg	atttgtcacg	agaggaactt	240
gtttcgctcg	agacagctac	tgcatgtgtg	agatgatcca	attggccggc	ttggtgtggc	300
cgtggcgaat	gctcgggaag	ccgtcaaagc	ctgtgccgac	tatttacgac	gagcaacgag	360

gagaacggtg	tcgcccactt	ggtggacaag	taatccgaca	cgaatatgaa	gccgttcctt	420
tctccgtaga	agatgtcaat	atattgtgcc	gggtacgctc	atggagagcc	ttggtattcg	480
ctgcaccaag	tcgcgcgtgg	ctatgtcgag	gcaacgatgc	cgggtggatat	tcgcaactcg	540
agcctatggg	tattttgcat	ggaggagcca	gcttggcttt	tgcagagacc	tggccggatt	600
cngtttccgt	ggcantctgc	aatnccgggg	agagataang	gtggggattg	canggt	656

(2) INFORMATION FOR SEQ ID NO:763

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1278 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1278

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:763

aggtttgtac	agcctctcga	agcggcgatt	ctaatecgga	ttgttaaaac	actaatacca	60
acgacttcac	catgaaagt	tacaagacaa	atgaggtgaa	aacatctcca	ttttgggtag	120
ctccggcgcc	ggaaaaacca	cccttgcgag	gcgatgctct	tcgaggggtg	agtataaaaa	180
cgtagaggaa	gcatagtgc	ggcaatacgg	tctgcgacta	tttccccgta	gagaaggagt	240
atggaactct	gtattctcta	cggttttctc	tgtagagtgg	caggataaaa	agctaatttc	300
atcgactgcc	cgggagcgga	cgactttatc	ggcggtagcg	tctggctctg	aacgtcacgg	360
actgtgccct	cgtagtagtg	aatgcgcagt	atgcgtggaa	gtagggttta	tcaatcaatt	420
ccgctatgtg	gagcagttgc	aaagcctgcc	atcttcatca	tcaaccagtt	ggatcaggac	480
aaggccgact	cgactctgct	gtatcacagc	ttcgggagcg	atatggctcc	aagatagtgc	540
cgtacagtat	cccgtaaaat	cgggagcagg	gttcaatgcc	gtggctcgagt	gctgaagatg	600
aaaatgtatc	gctggaaacc	tgaaggaggt	gtgcccgggt	actggagatt	ccggccgagg	660
agcaagacaa	agcgaaagaa	atgcataagg	tttgggtggag	gctgcggccg	aaaacgatga	720
gagcctgatg	gaaaattctt	cgatcaggga	agtctctctg	aagaggagat	gcgcgatggg	780
atcctgccgg	tctgatctcg	cagggtatgt	accccggtgt	ctgtgtcagt	gcgagaagga	840
tatgtgtgtg	cgccgtacac	tggagttcct	cggcaacgtg	gtcccggcgt	gaacaaactg	900
ccggcacctg	tggctgtgag	cggagaggaa	ggaaaccgga	tgcttcggct	cccctttgca	960
tccatttctt	caagactacg	tagaaccgca	tattggtgaa	gtatcatatt	tcaaagtaat	1020
gagcgttacc	tcaccgagg	agtagatctg	ctcaatgctg	accgaggctc	caaggagcca	1080
tcagtcagat	attcgtgccg	gccggacagc	aacgcatcaa	ggtggacaga	tgtgtgccc	1140
gcgatatagg	agctactgtg	aagctcaaag	aggtaccctg	ggcaatacgc	tgaacgaaaa	1200
aggcgtggag	catcgtttcg	acttgtcaaa	ttcccagacc	caagtaccgt	cgtgccatca	1260
gggctgccaa	cgaaccga					1278

(2) INFORMATION FOR SEQ ID NO:764

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1013 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1013

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:764

```

gttcaggaaa agaatacac cttccctacc gatgccaaagt tgcataaaaag atcgtgcgca      60
agatttttggg catcgtccat aagttgaatc ttccctcttgc caaagctata cctttgtttt      120
gaagcgggatt tatcgcgacc aacgcttcgc catcatccca agaatcgcaa gaaggcgctg      180
aaggcagaca ataaatgcga acaatagccg gacgattggt tcgagagctc aagcgtaatc      240
ttggaataat tctctctacg ccgaattgat tgagagggtt gaagccattc ttcccaaaga      300
cgtaacagcc cccaaaagat ttattccatt catgagccgg aggtcaatgc atcagcaaag      360
gcaaagagca caagaagtac gaattcggca ataggtatcc gtcatacgct cggctacggg      420
tattatcctt gaagcccgat ctttcgaaat gagtatgacg ggcacacgat agaagcttcg      480
ccggaacaag tgaacgactc acacacagaa agatcaaaaat accggccggg gacagaggta      540
tcgaggccgg aaagaagtta acggaacccg gattttaata ccggataccc caagcaatca      600
gacagcagac atcagaggtg caagaaacac aaattatctg caagcgagca ggcatagaac      660
ccaccatcgg acacttgaaa tcagatatcg tttaggctgc aacttttaca aaggattggc      720
cggggatgct ataaaatact gttggctgca gctgcttata acttcaaaag agccatgaaa      780
gctcttggga ctttatcaaa ataataagcc agatgccatt tgccaatggg ttccgcttaa      840
agagggtttt taagggacga ctatgtaaga tacaccgtca gaccgagaga ccggattgct      900
ctgaaagaag gcagtcgtaa tctccgaaaa aaatagagct gtgcagaagg gaaatcctcc      960
ctatgcacag ctctattttt cagcatatcc aaactactag tagtttcaga aaa          1013

```

(2) INFORMATION FOR SEQ ID NO:765

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 846 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...846

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:765

```

gctgattttc caagatgata ccgcactgtg tttgtggaat gtccccagac aattacaggc      60
ttacgacgaa ctgttatcgt atttccgttt ttcagtgtat gatggagtag tccacttcac      120
gttgctgtgc atatttcatg ttttccatta ccggtgaata tcgatatgat ttttatcgaa      180
ggccatgaac tccgaacatg tcggctgtga tgacagcccg tgcagagatt gaaaaacgat      240
cgtagcgtac gacgccttcc tgcacgggtgc aggagaccag pgtaggccta cggctcatt      300
acaacatgct aattatcagt gcattatggc caattaaagt aaacgagaac gaccttagaa      360
attttccctg ttttgcgtct tcaaaattcg ttccccctt gtttgggaag ttcagactca      420
atagcagatc gacgacctcg atccccctgt cgtatttgaa gcatcatttc ttataataga      480
aagaagacac tgaagatggg gatgatgtca tttttcagta cacatcgctt tttctttatt      540
ttgtagagca tggtttcgaa tttgggaccg gcttttgaaa tcagatactc taagaaacgt      600
ttcaaagaac tatgttattc gaatcgatta cccctgtcaa tgggtggctga tagcagggtat      660
cctgctcttt gtttttgaga tttttaccgg ggtttcttct tggttgggtt cggtatggga      720
gttttggctg ccatttaccg gcggccttgg ggttgtctat tgtgtggcag accgtttttt      780
ttatgtggct tcgctgctct cgctcttctt gctcagacct tttatgcaga agaggcgag      840
aaggct

```

(2) INFORMATION FOR SEQ ID NO:766

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 558 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...558

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:766

tggaggactt	taacttcgat	gctcccaaaa	caaaggcttt	caaggctatt	ctgccgcatt	60
gaaggtgggc	gaaaagaaa	tactctacgt	ccttcccggg	tgaataagaa	tgtgtacttg	120
tctgctcgca	acctgccgaa	tacgaattga	ttcttgccaa	tctgatcaat	acttacacag	180
tggtggcttc	caagaactcg	tgctgacaga	gcgttctggt	gccgttggtta	atgaactatt	240
taaagataag	gaggatttgg	tatatgggaa	tcattcattaa	gccgattatt	tcggaaagat	300
gacggctggt	acggaaaaga	tgctcgagcg	ttatggcttc	cgctttctcc	taacgcgaat	360
aaaatagaga	ttaagaaggc	tgtagaggct	attataatgt	gaaagtcgaa	gacgtgaaca	420
cgatgagata	tgacggtaag	ctaaaaccgt	ataccaagag	tggactgatt	cgcggtaaaa	480
agcttctttc	aaaaggcgat	tgtgacgctt	aagaaaggag	aaacgatcga	cttcttcaga	540
tatctaagaa	aaatggga					558

(2) INFORMATION FOR SEQ ID NO:767

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 669 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...669

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:767

cgaggaaaatg	aaagctcggc	cggcagcgtg	ggcaagatcc	gcgaatgtgc	gccttactgc	60
tcaaatactg	caagactacg	ggtatcccgt	catcgtcacg	gacacatcac	caaagaaggt	120
agcatagccg	gaccgaaggt	gctggagata	tagtggatac	ggtgcttctc	ttcgacgggg	180
ataagcatca	tctctacgga	tactccgagg	acagaagaac	cgctatggca	gtacttccga	240
gctgggatat	acgagatgcg	gcaggacggt	ctgcgtggcg	tggagaatcc	gagcaacatc	300
tcatcacacg	caatagggaa	gacctcagtg	gcatagccat	agcgtagcga	tggaggggcat	360
tcgccccgata	ctcatcgaa	cgcaggcttt	ggcagctcgg	ccattttatgc	caatccgcag	420
cgttcggcca	cgggcttcga	tttcggcgga	tgaacatgct	cttagccgta	ctggagaaac	480
gtgccggcgt	aagctcatat	agaaggatgt	gtttctgaac	attgccggag	gtatcaaaaa	540
gccgatccgg	ctacggatct	ggccgttatc	tggcgagtgc	tggcgtcggt	ctggacatcg	600

ttatccccgcc ggccgtatgc atgacggggcg aagtcggctc tccgganana tacgtcccgt
gagccgcat

660
669

(2) INFORMATION FOR SEQ ID NO:768

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 593 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...593

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:768

tgcgtgatca gtttcatatt gcggggaaag agtgtggagc cggccggacc tgtatgcgca	60
aagggagttc tatttcacga ctttggtata aatcttcgtg gcctgttcg cttttgcttg	120
accttctttg attggcagtt gtttcaatat cgttcaatat cccgtggatc aaggcctttt	180
tctttgatgg ttgccagatt tgggtatggt cctctctatt ctccaattgg gtcaagtagt	240
tgtagctgct tgggtgtttgg attcagcaag tcgtttctca aaacaggcaa taaatctcgt	300
atttcttgat cctccggcctt gaatgaagtc ggattttggg catggcctct aatgcttggt	360
ttaggttgat tcgtgtggtt attcccacat cggtttcgac caatcattta cggcatattc	420
gaaagcggat cggatctgct ctcgacttca gaacgatgaa aactgtggat attcaagccg	480
attttaatat tgcttttaat gcatactcgc ctaatgttgt aatcatactt gtaatgtttt	540
ggattagttg caaatctata gaaaattaag tgtgtggcat gcaaaatata tgg	593

(2) INFORMATION FOR SEQ ID NO:769

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 508 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...508

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:769

ggctcttcgc gagctggccg acttcttgat cgacatccat tctcagcaca aaatctcctg	60
ctcggcgaca gtttgtttca gctcaatgtg ctggatgcta tagcggaaaa cccgacttat	120
atgccacta cagcaaagct taccggggta tgccgaaaga aaacaaaagt tggaagacct	180
tcgtaaggca gccgctcgac agcgtcggag tatgactatt ggcagtttcg ttttgagcag	240
ttggaaaggc cggctctgaa tcgggagaag aagctcgttt gtaagaagaa caggtagct	300
gacgcgatgcc ttggacatta aaagagagct ggggcattcc tatgccttct ctccgacgat	360

gagagaggac tactgtcggg tctgaacaaa gtgaagatgc tttggccacc atagagagct	420
attatcccga ctcggttctt ttcggcagcg agtacgcgat gttcgaatag agttggctga	480
tattgcatcg atttgggcgg cgttcgga	508

(2) INFORMATION FOR SEQ ID NO:770

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 655 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...655

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:770

ccttgatctc aacatcatcg aggttgatcc agaagaagtc cgtacagcca agtgacggaa	60
ggcaacatac ttagtaccgc caggcaactg taccgtcttt gataccagggt gccctgaaca	120
cgagtgccac gaatggcttc cgggtgcctaa caactgtctt ggccgtcagc acttcttcca	180
acaaagcggt ggccaatttg aagcgctcgtt acccgtagaa gatgcataca cggcatagtg	240
ctctgtgcac aattggcacc ttgtgcacat acccagaaag taagcgttcc tccgtaggaa	300
gagaaagctc cgggtgtaacc agatagttat cagggttctg aggccttcaa agttgatata	360
agaagccgaa gagacacaga ttgcaactgtt gtacctgcaa aagaggagcc tccgggagga	420
ggggtcgtcg tccaattggt gcgtcacctg ctgcatcgat cgtcttccat gaggcaggaa	480
taccattttc aatgattcgg aaagtgttgt tgttcccggg ttcggattcg gggtagcata	540
ggtgcatccc acttgagcgt tactttcttg ccgactgcac taccggtcgg ttctgtcagg	600
agcaaattca ttggatcctt ctaccgtaac gtctttaata ccttcggaga tacgc	655

(2) INFORMATION FOR SEQ ID NO:771

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 521 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...521

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:771

tttgcttttc cgtgtgaacg tttctttttc gaccggaaaa agttccacct ttcaatcacc	60
gtcaaaccctc tccgtaccga ttcttcgaaa gaaatggatg ggaagaattt ttctcacaac	120
cgggattggg ataagggccg atcggctgct ggcattctcta tagtaagcga acacttgacc	180
atacgaatac atacctgacc tctaagagca tcacgtgggt gaaagattct tctctgcctg	240

ccgagttgct	ttcccatgcg	taaccgtgtg	gatggtcatt	ggctgtacct	ctgctgagaa	300
atgagtaact	ccgcttatgt	ttccgttata	ggaccataca	gctcttctcc	gttggttgca	360
tcggcatttt	cacgtgtgta	tacagtcgcg	ccgcatatcg	ttgcggggtg	ttggcaaaga	420
aggcgtccca	actgctccat	aattaggatc	gccatagtaa	ggccctacca	actcgggggt	480
tgcatagctc	catagatgct	tccccacgtc	cagncgatg	t		521

(2) INFORMATION FOR SEQ ID NO:772

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 711 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...711

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:772

ttgacggcaa	acatgccgta	gctctcgcg	tagttcttcg	tgatccagaa	gcatactgct	60
tggccactcc	gtatggcgat	cgggggtaaa	acggagtgtc	tcccgttggg	gcacttcctg	120
caccttgccg	aacagctcgg	atgtagagct	tgatagatcc	gcgtttcctt	ctccaatccg	180
agtattcgca	ccgcttcaag	aggcgaagcg	taccacacggc	atcggcttct	gccgtgtact	240
ccggacgtcg	aacgacacct	tgacgtggct	ttgagcggcc	agattgtata	tttcgagggg	300
cgagtggctc	gaatgatgcg	taccaaagag	gagctgtccg	tcagtccccg	tagtgcagat	360
tgatcagccg	ctcgcgcttc	atgtcccgc	ccattcgtcg	agatagaggt	gttcgattcg	420
tcccgtattg	aacgaagacg	acggcgcagg	ataccgtgca	cttcgtaccc	cttttctatc	480
agaaactcgg	gaggaaagag	ccgtcctgcc	ctgtaattcc	tgtgattaat	gccactttct	540
tttcataatc	ggaaagaccg	gattccta	attgaccggc	tcaagcaata	atatgattcc	600
ctgcaaaagt	actcattcct	cccacgataa	tgcaggagct	ttgtttttcc	tccgaaatga	660
cagtagaggg	ctgcctttgc	tgagacccta	angggatccc	catcgagact	c	711

(2) INFORMATION FOR SEQ ID NO:773

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 412 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...412

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:773

gggcattacc	tgctggcagg	aaccatacac	gtcgcagtta	ccgtaataac	accgaaagca	60
------------	------------	------------	------------	------------	------------	----

cctacggaag	atataatcat	attgtatcgg	gcctgactga	tggctttgtc	aaccttaggc	120
gcgcacgtt	gaaccacatc	tgctccaggg	aggaacgtag	aaataggatt	cgccgaagaa	180
tttcaactttt	ttgcttcttt	ttcttcscaga	aagaattctg	ctataacctgt	cgtgtacgct	240
gtaaatagtt	gatcgtacct	gtgttcggag	aatcgacatc	cacggaataa	ccggtatcgg	300
acattgtgaa	ttcaggatat	aaccatcctg	aggacattaa	ccaaccttgt	ctcccgtcgt	360
agtagaggca	taataactgc	tgtatgcccg	gaaaccagat	agtattctcc	gg	412

(2) INFORMATION FOR SEQ ID NO:774

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 547 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...547

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:774

ggcttgccag	tcgtcatcgc	actgaatatg	ttcgatgagt	tcgagaaaaa	ggcgacacct	60
ttgactatcc	tgccctgtcc	gccatgctcg	gtatccccctg	gttccgacgg	tgggacgaac	120
gggacaaggc	ctgccggaac	ttttcgaacg	cttatctcca	ttcatgaagg	acgaaacaaa	180
atcatacgtc	ccatttctatc	aactatggca	gcacataga	accggccgta	gaagctctga	240
ctgagaaata	aacaatcagc	tctctctacc	ctattctctt	ccggcacgct	atatgcagtc	300
aagctgctgg	aaggcgataa	ggagatgaat	cgcttcgtag	gcgacagccc	aaaggtcttt	360
tcactctttc	ggcccgggac	ttcgctctac	ggagatcgac	gaacatctga	cagtggcgag	420
agatgccgaa	agcattatca	cgatcagcga	tatggattca	tcgcaggagc	cctcaaagaa	480
acataccgga	cagctacaaa	cagctcaaga	ccctgaccga	tagatcgatc	atatacgtcac	540
catcgcg						547

(2) INFORMATION FOR SEQ ID NO:775

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 590 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...590

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:775

ggcaaaatca	ggataatcga	cgctttcgga	agagtggcat	ccgaaagtctt	tgtcgtgatg	60.
ccttgctctg	caagccatgc	ctttacgcgt	tctttcaatc	atatccggcg	tggtcgctac	120

aaataccgat	tgtttccatt	gtctgagtg	agtttgtaaa	tacagattgc	ccgaaagcta	180
tattccgatt	tggaagcgct	ttcgggcac	ccgtgggttg	ttatcagtg	agtattttca	240
acactgttcg	tacacattct	ctgccgtaaa	gccgagtttc	tcgtccagca	cctttaggga	300
gcggagaatc	cgaaagagtt	caatccccag	acggcaccgc	tttaccacac	aggccttcca	360
ggttgacggg	caatccggct	gtcaggccga	aagcctgata	ccgatgggaa	gcacttcctc	420
ctgatactcg	gcactctgcg	acggaaaagt	ccttcggaag	gtaccgacac	gatacgaagt	480
tttacaccgc	tttgccgcag	agctctgcac	cctcgaccaa	tgtggacacc	tcagatccgt	540
ggccaggaga	actacttcga	tattctgatc	cgtattgacg	atataagccc		590

(2) INFORMATION FOR SEQ ID NO:776

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 555 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...555

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:776

gaaacttact	tggecaactg	tcgcatagct	aaagacaata	tcgctgtaaa	tctgtagcag	60
atcagatcaa	aatgctgacc	aaagagcaaa	aagaagagtg	aaaaaattcc	tctaaacatc	120
tttttccctt	atttcgtttt	caggagcgat	attatccgaa	tcggaatagg	gttactccaa	180
taggcaaggc	tgtccgggtat	aaaaacttcg	gcagcctttc	tttttttaggc	aagaggagct	240
aaggaaatag	ttggtttctg	gaccaaagat	ccggtatcta	attattgctg	tccgtgaact	300
tggaggtcgt	gcgtgtcagc	gaatatcttt	cattggaatt	tgtggcctga	aaatagagat	360
tcgcctccta	taccaactcg	tttcgacaaa	gatgcagtg	aaaggaaatg	gatcggcatg	420
gttctgtatc	gatagggtaa	atatccgcta	tctttggtct	aatgatgata	gccacaaacc	480
aaggatacag	gagttcggcg	actacctcgg	caggtatttc	cacactataa	agtccagaaa	540
taccctcatg	cagct					555

(2) INFORMATION FOR SEQ ID NO:777

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 977 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...977

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:777

aaggcgggta	cgaagaactt	gaccggggta	gaactttttt	acccgacggg	cccgccctctt	60
ggatcggttcg	ggcttcgtgt	atggcggcgc	cgtgcatcgt	cgatggagct	ttttctgacg	120
gacagtctct	tgctgctcgt	caaagctagg	gacgcttggt	tttcggatcg	gatgtgaatc	180
tctttcgtcc	cgctcttcgg	cgggatttcg	tataaacctc	taaaccaatg	aaacgatgaa	240
aagaaatgga	tcgatgcgct	gtgggtgatg	ggagtattgc	tcatggccgg	gtttgtttat	300
ctgcttgtaa	tcgggagctg	gacgtgcaga	cggtttttcc	gttgaagtaa	gcacgatgcc	360
ggttcccaaa	caaatacaaac	agggcgaaaac	cggggaagtgc	gctgttcctt	cgtttcggaa	420
ggcgattttt	ccggaacgtg	catacaatgc	gattttttca	aacggagggg	aaaggtgttt	480
tgccgatcgg	cgcgggggtg	ctctcaaac	caatgactgt	tatccggtgg	gtaagggagc	540
ttccgcctct	actatacctc	gcaaagcaaa	gagcggcagt	cgctcgaatc	gtcttcgagg	600
acaatcatgg	acaatcgcaa	acgatcgttc	tggatttaat	cacaaagaat	cggacgagga	660
taaagagcga	gaagccgggt	accgcactga	cggctccaat	aattcccttt	ttgttcttaa	720
tcaagagaag	gcgccgtccg	agaggatagg	cgctttccgt	tttcggaaa	agcgtaaatac	780
aggaaccgga	ttgcacctta	taatcttcca	tccggagctg	cttctccttc	attattctcc	840
attgggaaac	gttatttcga	acgttacttc	atcatattcg	taaatgccgt	ggatggaatt	900
acatatacgg	cttccgggtg	attacgggac	ctccgaaacc	gaaaagataa	aacagatgct	960
tgacaggtat	cttgctt					977

(2) INFORMATION FOR SEQ ID NO:778

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 563 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...563

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:778

gccagaacgt	tccatccggg	gatgaaacac	gtatggctgt	gccatctgac	aaggacaaca	60
accaccccga	cctgtgctgg	aaatccatcg	aatatcgctg	ttcagtgagg	ggattcgtgt	120
cggaaaaagat	atggaaacta	ccgtactaag	cgtacatccc	cctcatctct	atatactctt	180
ttagaggact	gacctaagag	actccccctt	ctcgcacttc	atatactgcg	gcaaataagt	240
accctcccat	aactgtgatt	gttacaggag	aagggtgacg	gataagatta	taggattcct	300
ttttcagcgt	ctccatccga	aaggatgaga	ggccaggggc	aaagtgcgaag	gggggtggtat	360
tcgcccttca	gtcctacggg	agaagcattg	cgatgtcatg	aacgatctga	atgctgttgc	420
gagcttcgtc	caaaccgaaa	cttcaccggc	caaaatccgc	cgataactct	cggtgtgcaa	480
cttccgtaaa	ccttcactga	actcgaatga	ttcgccgtcg	attctatcga	cgaaagggtcc	540
ttctctcctg	tacgcattct	cgg				563

(2) INFORMATION FOR SEQ ID NO:779

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5800 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...5800

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:779

gaatctttct	atctttaact	caataagaat	cagattggaa	caatgactag	atgcagtg	60
agcgattgct	ctccgacaaa	agggtgggca	tggagcacac	caccaaccga	aacaatcggc	120
tcagccatgg	gagagaacgg	acttcgacga	gattatgacc	gcatggtctt	ttcttcacct	180
tttcgccgac	tgcaaaacaag	gcacaggtat	ttccccttgc	aggcaatata	ttcgtacaca	240
atcgtttacg	cacagtctcg	aagtgaagctg	tgtgggacgc	tcgctcggca	ataaatcaca	300
cgcggaactga	aagcgcggtta	tggcgaattg	ccatgggagt	cggggccatc	agtgccatcg	360
tgtcggctgc	ctgtctggct	cacgacatgg	gcacccctct	ttcggtcaca	gcggcgagcg	420
tgccatttcg	gcttatttcc	ggaaggaaaag	ggtaggggtat	gggaggacgc	agtccgcaag	480
gaaggaggtc	ctgggaagac	ttcctgcaact	tcgaaggcaa	tgcaaacgct	ttccgtctgt	540
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tcgatcgtga	agtatccata	cagcagcgag	atggcagcaa	ggccggcaaa	ttcggattct	660
tcgccacgga	agaggatact	ttcctttgat	cgccgaagag	cttggcatgc	tatgccgaaa	720
cgaacatccg	gtgaatacgt	tcgctatccg	ctggctctatc	tgggtggaggc	agccgacgac	780
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gacggaaaac	ctctttctgg	ctttttgtcc	cgaggaggaa	ctgggcataat	acggggagta	900
ctcgatcata	tcacggatgc	caatgagcag	acgcttacct	ccgttcgcgt	gtgatcagtc	960
tgttggtcga	atcatgcacc	gggtctttct	ggatcatgag	gacgagatat	tgtccggtac	1020
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cccgaatggc	ctattcgaag	atctacgtgg	cacgcgacgt	ggtggattgg	agcttgccgg	1140
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gcctatagcc	ggacgctgct	cagtcggtaa	gtacgcagta	caacatacgg	gaggagagcc	1260
tctacggtaa	gataagtga	cgctggacta	tatatccggc	atgaccgata	tatacgcgct	1320
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cggccgggta	cggttcgttt	ttccaagaag	aaaatcctat	gaaatagtac	tgatagggtta	1440
tggcaagatg	ggacatgtga	tcgaacggat	gcacgcagcc	gagggcatga	agtgtgtctg	1500
acgatcgtat	ccggagagga	gacgtttctg	attcgatagc	gtttcgttcg	gccgatgtag	1560
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ctgacggaaa	tcctcatgta	cataagttgg	acgctccgag	cggaaacggct	attacactgg	1860
ccagggattg	atagccgaat	ctccctcgct	ggacgcttgg	agactgacgg	aacaccggag	1920
gagaacgaac	tcccgatcac	ctccatccga	gaaggcgaag	cccgggtacg	cacagcatat	1980
cctatacatc	cgaggtggat	cggctgacgt	atgccacgaa	gcttttggtc	gagagggatt	2040
cgctcttggg	gccgtgttgc	tgccgaatat	gctgccacgc	acaaaggctt	tctgacgatg	2100
aacgattaat	cagcttataa	caacagaata	acgatatgac	cttccattgg	aaagattgac	2160
gccatggcgt	cgtataaaaag	gcgttgccat	tactattctt	tacctctttt	ttgtatatgg	2220
gccggcccggt	tttggctgat	ttttctgctt	ttgacgtaga	ttattatttc	ttccatatta	2280
tcaaatgggg	ctggtataag	aattccgaaa	caagacgctt	cggatcattt	gcagctgggt	2340
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tcgccattcc	gacttcttcg	ctggagaaga	ccttgcttat	aggcgactac	tcttcgtgag	2460
caagctttcg	tacggaccgc	gttcgcctat	gactccgctg	gtgtgccgct	gacgcacaat	2520
acgatgccat	tgacgggtgg	caaatcgtct	cggacaaaacc	tctcttgccg	tacaagcgac	2580
tgaagggttt	cggacactca	aggaggggga	tttgggtggc	tttaacttcc	ctgcaggcga	2640
tacggtgccg	tcaagcagcc	caatccggat	tattatatgt	ggaagaaact	cgtagacggg	2700
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ccgattccta	caccttcaag	atggactatt	attcatgatg	ggggataatc	ggcacaactc	3360
tgcagatagc	cgctattggg	gttcgtgccc	gaggatcata	tcgtcggtaa	gcctgtattc	3420
atctggttgt	cctgaataag	gacaagagtc	tcttcggagg	taagatccgc	ttcggtagat	3480
gatgcgaacg	gtcaatgcag	attaaatcgc	ggtatagaaa	cagaattttt	tcattggcct	3540

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gccggcagtc gttctgttgt cgcccgctcct ctttcgttct tctttgttac tacctatcgt 3600
gttcgaagcg atgccatgct cccgactacc ggtccggaaa gctgctatgg atcaatcgga 3660
ttgcacgcgc ggacaggag atattctggg cataaagtac agacaagatg gcgaagcgga 3720
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tcgaatcggt gccacatagc cggacccgaa ggtatgcaac cgctgaccat acggtcgaaa 4320
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atctccttcc gtatgccttg aatggctgga catttcgccc ttaattatgt ttactttgag 4560
tacgtggagg actgtcccaa tgactttcgc tactcgatcc gtcccagcaa gctcccgaag 4620
atgaaagttt ccgcccacgt gtttactacc gaactttgcc cataagtatg gattcctgcc 4680
caacctaaat attgtcgatc tcattttcat gaaggaccat ccgcaataca gaccttgaag 4740
gagtgtattc gctacaaaaa ataggtgaga aaaatctcta tctttgttcg aattgataat 4800
agatctgatt atgacaactc tcgaagccat acaggcaccg ataaacggat tgtcaaagat 4860
tttcatcatt cgtttgagca tgactcgat tcccaatcgg gtggatgacg aaagcgataa 4920
agatcttgaa cggttccacc ggtaaacact ccgtccgctc ctgaccgatg tggtcgcagc 4980
cgtctgtgcc ggcaaaaaca ttcgacgact cttgaggcgg ctgtcctgct ggaaatgatc 5040
catacggaa cgtgatccac gatgacgtca tcgatatggc ttctacgcgt cggggatacc 5100
gacctcaat gcttttttcc acaatcgtgt gccgtttttg atggggactt cgtgctctct 5160
tccgccttga tgcgtgccat cgctctgaat gatatcgcat catcacgatt atatcccggc 5220
tgggacgtga gctgtcggag ggtagatcag gcagttcgag acagccgaca aagtgataat 5280
agacgaagac atttatatggg ggtgatccga cagaaaacag ccattgctctt tagtgcttgt 5340
gagaggtcgg tgctattacc gttcaggctc cagtagagat tgtggaaagg tgaagagggt 5400
aggggagttg ctccgctatg ctttccagat cagagacgaa tattcgatta ctatcggaat 5460
gacgtaggca aacctacggg caatgataac gggaaaggaa gattacactg cctctgctgt 5520
tcgctctcaa gaacgagagt ctgcgctgcg agatcattgt ctaccattc tggacaaaa 5580
agcttttcgg aagaagattt acagcttctt acctcctttg ccatagagca tggggatatag 5640
tttatgccga aagaaaaatg gctgaattta tagacaaagc aaagctgagt tggctgtttt 5700
ccctgactca gatgctctgc agtcgttgct tgcttggctg attttatcgt acaaagagcg 5760
aaataataag tcttgtactc atctttctta aaagccgagc 5800

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(2) INFORMATION FOR SEQ ID NO:780

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 576 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...576

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:780

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ggcaagagcg aataagaggc aatcacctct atttattccg atgtattgaa caaaaacttt 60
ctattttcta tgattttctg ttacggagag taccgatcgt tctctcaaag gcttggttgt 120
gatctcatca agacccaatt cgtcaaggcc ttttcggcca aaccgttgtg ataatcgatc 180
agatcttcca cgatcgacga atccccagac gattataaat acctgtcaca gctcggatct 240
tttctcacac tgcacatccg gcatcaaaag ggattctctg aggagattca attctctccc 300

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tgagccatct	caagggcttt	gatcagaagc	atcgtctttt	tatacaagct	atatcatcgc	360
cgattttctt	gccgaggata	atgggatcgc	caatacatcg	aggaggtcgt	cctccaattg	420
gaaagacaag	ccgatatgta	tccgtagcga	tagagaatat	ctgctttctc	aatatccgct	480
cctccggcta	agcccccatc	ttaaggctgt	agccaagaga	actgctgtct	tcaaacgaac	540
atcttcaggt	actcgtcctc	ggcaacaaag	tcccgc			576

(2) INFORMATION FOR SEQ ID NO:781

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 566 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...566

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:781

gtcttcttga	taaaaatcac	aaaaaaaaaga	tttggccgac	atttgaaagg	attgtttttt	60
ggaaaaagta	caaactaatg	aggttattcc	aatattccgg	atgacaccaa	gttcccaggt	120
atacctaata	acattgcttg	cattcgtatg	aagagaagca	ggaagataag	aagcgatctg	180
aaagagtgca	gcgagaataa	ttgaaagaat	aattttctaag	gttcaatagt	taattataga	240
aaggggattt	attattttta	tagattttat	attgtttgat	ttgttgctcg	aagggatgca	300
aatattttata	ataatagctt	ttttatagca	tgatagtttt	cctatttaaag	ctgcgcagtt	360
gattcctcgca	ttcgccattc	tggttttctg	cctgaattgg	gacattactt	ttttgctcgt	420
ctcttccgag	tcaggggtgga	cagttctacc	ttttcttcga	ttggggaggt	gccatcttcc	480
gttcaagccc	aacggagcga	aacggaattc	ggatcggtgg	cttcctctcg	tggctattga	540
gatcacggga	tgatagacga	atccat				566

(2) INFORMATION FOR SEQ ID NO:782

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1013 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1013

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:782

tcagggattc	ggcagcgatc	ggaccgatcc	tcggatgtac	tcctctccaa	caaaagtaat	60
atatcccgtg	ctaagccctc	ccatttcgct	cttgatagat	cgatacgatg	aaagagatgc	120
gtgcgcagtc	aaggagttgg	tgctgccttc	cccagccttg	atctccggat	agcaggggct	180

taagaaaagg	aaacgggtgag	atcgtgaaag	atgaaacacg	aaccaaaaaa	cgccggggtg	240
cggttgatt	ttctgaaaaa	gtggcgtag	atctttttcg	ctgtggcgcg	taaattttta	300
cttcccgaac	caaaacgaaa	aaattctcgc	gccacgtttt	tggagcatgg	aatgagaaaa	360
ttttgggctg	taaactcccc	aacgatgaat	aagtgatctg	tgccgaaaaa	cttcctgtga	420
gcaggggggc	gaaagattgg	gtctccgcac	agagcgaaata	agagaggggc	tgaaagccac	480
tgcggatctc	gccccctctc	ccttatgata	gtattcgta	ggcgtctctt	tattcgagct	540
atgtgcgaca	gtgaagtgtc	agacgatagc	cgctacaatg	gttgctgctc	cgccggcaac	600
atttgctgct	ctcccgtcag	catgtttttc	agattcattg	cccggccgct	cgttcgtttt	660
ctccgacgag	tgccacgtat	ggaatgtggc	tgcattggca	tagctcatct	gtttcttgat	720
cttggcagg	tgggtacag	ctctgtgcga	aggccttgct	ccctgagctt	ttggatcagc	780
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cttctcggca	gggaagagg	cgagctgcat	catcacatca	taatacggtc	tgcaccgaaa	900
gaaatgccc	caccggacat	tccctccaga	cgaatatgcc	ggtgaggtg	tcgtagcgac	960
caccgcccgt	aatgctgccc	tctcggcgctc	gagtgccttc	acttcgagaa	tgg	1013

(2) INFORMATION FOR SEQ ID NO:783

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 796 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...796

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:783

tgcatacagg	taaagaaatt	gccgagcaga	tcaacatcct	cggtgatgag	gtgtaccgct	60
tagctaccac	gtagtcttct	ggaaagcaga	attgatcgct	ttgtgatcct	tcagcaagat	120
gctttcgacg	atgtcgattg	caacagccgc	tcgagcgtca	ggagctgatg	ctcagcagaa	180
taacggacat	ctgtcgacgg	aattcgattt	cgaagacttc	ctcgaggttt	cggactattt	240
caagcaatga	tcaataacct	caagcagggtg	aactattctc	agttcaaaaag	tgctaatttg	300
acaaatacaa	taaagagttg	gacgctattc	tggccgaacg	cataaataaa	ttaagatagt	360
tatgtcaaaa	caaagctttt	cagaaaatat	atcgaagatt	accaatatca	ccaaggcaac	420
ctgctctttg	cgtgccaccg	ggtgggtaat	gaagagttgg	ccactatcga	cggccgattg	480
gctcaagtgg	gcgtattcag	ggcgaagatg	taaccctgca	ggtatttgcc	ggtacggagg	540
gattcccacc	gatgccgaag	taatcttcat	gggcaaggct	ccctcgctaa	agtgggagat	600
cagttggccg	gccgtttctt	caacgcttat	ggcgaactat	cgacggaggc	ccccaaccgg	660
aaggaaaaga	agtggagatc	ggcggtcgct	cgttaatccg	gtccgctcgta	agcagccttc	720
agagctgatc	gctacggtat	cgccggtatc	gacctgaaca	atactttggt	gacgggacag	780
aagatccttt	cttngg					796

(2) INFORMATION FOR SEQ ID NO:784

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 970 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...970

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:784

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agcgtggccc gaatgctccc atcagaatac cgatgatgat agggccgccc ctaatcccag      60
cttgataggc atactgacac cgggcagata gaaggggaca tgccgaaaac acatcccaag      120
acaaggcctc cgaacaaagt ggtcaaagag gattgtccaa ctgtttgacc tcatcaccca      180
aaatctcggc cacacgtcta cagccttgcc ttccgcaacg acggtcaggc ggtcgcccac      240
tgaccccata caggttgccg attttcagca tgccgaggcg taccggtga gcttagggcg      300
ctgcagcgaa gatctctatc cggcagcaat tctactccgg cctgtccac acgatgatat      360
agttattacc agcctgcgtg atacgagctg ttgtccacac tgttccagtc tatatcgga      420
cggttccaat ccttcatttc ttcttgccga agagtatttc gagctgtgag gtatcctctt      480
caccggagac gcgaggatgt gatcgccgaa atagaggatc atatcagagg tagggatctg      540
actttaccgt tgtgccagac ccgtgtaatg acgaaagggc gcttgagcgg agtgctactt      600
cgcgaaacgt tttgccatcc aaagcaggat tgcagattca tactcggaga agaaagcttt      660
gggagcctcg gaatcgtctc gttcctgacc ttgggcatca taactttcag cagggccaaa      720
gcaataataa caccccaacg cccaaaggat aggtaacggc acaggccaga cctttttcgc      780
ctattcggcc gtggcatcgg gattgatctg atggaggggc gtttgggctg caccaaagca      840
ggggatttgg tagtggcacc ggccacgata cccatcagat tggcatggaa atgccaagga      900
tataataaag gaggatgcac aggagaaatg tagtaggact aatcccaagg agataagatc      960
tggcaatgcc

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(2) INFORMATION FOR SEQ ID NO:785

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 817 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...817

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:785

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gtcgtacaat tctgaaaat agtcggaagc atagtagata ttgccccagg gaagccaagc      60
cattctatat cttctctgat ggcattccac tactccactc ctctttcacc ggattgggat      120
cgtcgaagcg caggttgtag acgccccgta tcgctgagct atcccgaagt ctatgcagat      180
agctttggca tggccgtatg gagataagcc gttgggttcc ggaggggaaac gtgtctggat      240
tcgacgtcat tcttcccttc ggacaggctc gattccacaa tttgttcgat gaagtaagac      300
tcttcttttc ctctatgccg ctgttcttat ttctgttcat atcatccgtc ttgctttgtc      360
ttattttacat tagtgaacaa aggtaatgat atgggacata aaataatcac ggggcaatcc      420
gctcaagcag gagccaatgc cagtttgtct gtttggtacc ttgaatgatt gtgtatgaca      480
acgaaacggc taaggacgat tatgacggag tgtcatcatg cgcaaattac tgcgttgctg      540
cgacattcgg cttcagtcgc gtacttgtaa gttcgtcctt ttctacctag tcttagtacc      600
ttgtacttta cacattcttg cacacccaaa aggggctcga caaaaccgaa ttttgacaca      660
gccccaaacg aatcagcgtt caacgggaga gacctttata tccgcgcgct aaatcatttt      720
tccttctttc ggctagcttt ctaaacagcc ccttcttggg cataggcctg ttcattctcc      780
tctcgtatgaa cctgggatcc tgaatcacia tagcgtt

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(2) INFORMATION FOR SEQ ID NO:786

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1137 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1137
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:786

tatcaattct	tcccgaatct	attcataact	tcacaagcca	atcgattttc	cctttttgca	60
acggcaagca	aacgggttagt	tcattgagcca	ggcctgtccc	cgaatcagtt	cggtctgtgat	120
ttgtttccca	ttgagtgtta	catatatcca	ttgccgaaag	tcaggtggca	tgccacggtc	180
tgttctctat	ccgataaata	tcctgcacca	gcagacagga	gctaattctct	ccccaaggct	240
ttttcccact	tgctctacag	gcatttcttc	ccaccctttg	gttaagggtta	gaggatggag	300
tcgcctcgaa	ggatattgtc	tggaaatcata	ccgaataccc	caccacttgc	cgaacatagg	360
gtttgcccc	tgacaagccg	tcgtgcgaaa	tcatacttcc	tctgatttgc	ctccttccaa	420
tgtaatttct	cgttcctccc	tccgacagaa	agccgtagt	tcttgccggc	ttccatgtcc	480
gtatatataa	agcacgcgga	gcagaaaccg	cttgccactt	catgcccggt	atactcttga	540
gcccgtatag	tagtcccagc	agctatggcc	gtatatccga	gagctattgc	catatgcagg	600
ggatagcctt	gaggtcggcc	tgcgagtaca	aaatcgttct	gtcaaaaagcc	aaagccagca	660
caagaaaaga	ctcaggcata	cttgacgcat	tcggatacga	acccccgtct	tgcgaaatgtc	720
catattgagc	ggtgagcggt	ggtcaaatgt	ctcacctcct	ccaaaaattc	tccattcacc	780
ggaagaatac	ctccttgccg	gccatatccg	gacgaacaaa	cagataaaagc	atgaatcacg	840
aaccgaaact	tcgccaagg	gcaagagttc	aggaaaagga	gacgttccgt	accgtaaata	900
ccttctccat	acatatcgag	aaattcgccc	aggttcgcag	cacttcggat	tcataaggca	960
atatggagcc	attgccttca	gaccgatgtt	cagcagataa	ttacccccac	gacacaccac	1020
tcgcaccaat	cttcgaactt	ctcgcyagct	ttgtcccga	tagagcctct	ctcctgectg	1080
agcgatagcc	ccatgtctca	gggaacatag	atgccgcggt	ctgccaagat	ggcaatc	1137

(2) INFORMATION FOR SEQ ID NO:787

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 960 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...960
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:787

acgcgagttta	ttacctctcc	gaagcaaggc	tgtacataat	cgaattgagt	gtaatacagc	60
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agttgccaat	agctaagaag	tatttgtcct	tattagtgg	gctttcagtt	gagaagtagt	120
cagaagtgg	tcagcccatg	cgggtctgat	ccatgcgctg	tatagtttgc	aaagctgact	180
ccggtattca	aatgacgtag	caacctgtat	aaggggcttt	gagatagttg	tacacgtcgg	240
tataacatgc	tcttgggtgt	agtagtactg	cataccgtat	ttaatgggtg	gctgcctacc	300
tgggaattcc	agctataatc	tgcacctgca	atcaagagaa	cttctccaaa	taactcttat	360
ctggcatagt	agccttttca	tacatcaata	cctatcaatg	atgttcgtca	gttcttctgg	420
ggaagaagca	gacatacgg	agtatacatt	tcagggaat	agtcgccatc	gactgcactg	480
taatacaagt	ggtaactttt	tttgttttct	ttccttttct	tccgctaata	acgtcagtgc	540
accaacccaa	gccaagaaga	ccggagcagc	actagctgcc	aatccatctt	gtatttcttg	600
tgaataaatg	ccttgataga	ggcgtttgtc	gttcctattc	agcttcgtct	gtgtaatgca	660
catccagata	gaagcccttt	tgagcctcca	agtgcgcaa	ggcttgagag	cttctttgaa	720
ttttgcacct	gcaacacaag	catacgaacc	ggcgtattat	acaagtcgcc	atgatctgta	780
taaaatctct	attgaagagc	tgtttataag	ctgtttcgaa	ataagggcta	aaaaagcatc	840
atacaaacgt	tgtgtagcta	cttcatcagc	tccttgaaag	ctacttcaat	ttcgatgttg	900
tttctaacct	tcaattgggt	tgcaaccaca	tatactgaac	aggattaatg	gtaagagctg	

960

(2) INFORMATION FOR SEQ ID NO:788

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 405 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...405

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:788

caaaagctta	gaaaggattt	cccccgata	aatatagtag	gataccgagt	ggctatctta	60
agggtaacga	tgatgaagtc	ctgattgaag	atattgctct	aaaaagcccg	atgtggtctt	120
tgtggccatg	gggtctccca	agcaagactg	ctgatggagc	gtatgcaaag	ggtacaccct	180
aacgctatct	atcaagattg	ggcggtagtt	tcgatgtata	tacggggcgc	cgtagagcgt	240
gctccgagtg	gtggattcgc	cacnatctgg	agtttgccta	tcgcctttat	caagaagccc	300
agtcgcatca	agcgtaaga	tacattttaag	ttaccgattc	ctgttagagt	atttaaccca	360
atagnaatat	aaatttccat	tgaaaaaaaa	gtgatgtttt	ggtct		405

(2) INFORMATION FOR SEQ ID NO:789

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5344 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
(B) LOCATION 1...5344

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:789

caggttttcc	tccatgagaa	gagtggcact	ccgatcatgt	tctcgactag	cgtgtcgttt	60
acaatacgca	gaatgagaag	atcaatgggt	ttatgcttgg	cgatgtttcg	agaaagctaa	120
ggatgggctg	tatcgtaga	tgggcgaatt	atccgatcgg	ccaaacaggg	gatgtcagtt	180
actgttttcc	ccgattgata	aaccagttga	gtttctttct	gatgggtgat	ccgtccgtgc	240
gtatgatctt	cctacccaca	aagtgcatt	gaccgcaatc	aacgggcagg	atccgaaggg	300
cagtatggaa	ctattatgct	caagtctttg	gaacgggtag	ctcgaagggg	aaggttaaccg	360
atgaaaaggg	gacattcgac	gagacattca	gtgcaagggt	ttcctgaccg	tcttcgatgg	420
cagaaaagaa	atgacagctt	tgaagaggag	ggaaacgata	tctctcttgt	atattatgac	480
tatcctaacc	gatgtatgcc	ggatgtgccg	aggtgaaaga	cggactcttc	gaaacttcgt	540
tatcgtagcc	aaggatgtga	actattccga	gcacgaaggc	cggatcaact	ttatgcttat	600
aacgagagca	caaaggcgga	agccatgggg	gtagactctc	catcagagtc	caaccgggta	660
ttcctgatga	ggtaacggaa	gataatcacc	gcctgaaatc	ataagctgct	tcctcaatga	720
cagtacattc	cgatcggaga	tgagggttaat	cctactcctc	tgtttatggc	cgaagtattc	780
gactgaatgg	aatcaatatc	acgggtagcg	gagtaggcca	tgatattacg	cttgatcga	840
tggcgtggcc	gacctgacct	acaacctcaa	tgcataattc	acagttcggc	tactgatgca	900
gggtgggcca	ctattctctt	catgataccg	gtttggccga	aggagatcat	actgcccagc	960
tgacggtttg	ggacattttc	ataatgccgt	ccatcatgac	ttttcattca	gagtggtaga	1020
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ccgataagaa	tacaaaacaa	aacgaacgaa	atatgattat	cagaaaatgc	tgaaaaataa	1440
attggccccc	ttggccatac	tgttcccttt	gctccaaaag	ctatgaaggc	tcaggagcaa	1500
ctgaatgtgg	tacacacctt	gtgccatcgc	tgaatatcag	tccggatgca	cgtgcggccg	1560
gtatggggat	ataggtgtgg	caacgacggc	gatgcgtatt	cncagttatt	gaatccggta	1620
aatatgcttt	catggatagc	aaagccggta	ttagctcttc	atatacccct	ggctgtccaa	1680
gctgggtcaat	gatattgccc	tgatgcagat	gaccgtttct	acaaattggg	aacagacgag	1740
aatcaggcta	ttagtgtctc	tctggttatt	tcacattagg	aaagttggag	actttcagcg	1800
aattggggca	atcatgggag	aggcccatcc	caatgaattt	gctgtcgatt	tgggctatag	1860
ccccagttgt	cggagaactt	ctccatggct	gttgactcgc	gttacatccg	ccagacccaa	1920
gcactcagaa	caccggagag	aatcaggccg	gaaatgcctt	gcggcgata	tagccggtta	1980
tttgtagaag	tatgtgtctc	tgggtaatgg	gagagcttgt	ggtcgttggg	tttcaacgta	2040
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cttgaactta	gcaagctgct	tgtaaccact	cctcctatca	tggataaaaac	gatcaggccg	2220
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ttttcgaata	ggattcgttt	cgatgtacac	cgcttgctcg	aaggttatcc	tttgtggatg	2640
ggcgggttcg	tctggaacat	tccaagggtc	tggagggaca	ttccgatgcc	gatgtctcat	2700
tcattgctatt	tggtgatgcc	tgctgggtgc	tgccgctttg	cgtgtatcgg	ctatcacttt	2760
cctccttcgg	atcctcaata	taaggggata	gatgtaagat	cctgttggtc	cgcggttatg	2820
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ggaaggcatt	tcgcctatg	cgtggccttt	gctcattgtg	ccgtctgaga	ctaaccaagt	3060
cctaaaagat	tagttgcaaa	gaggttcttt	ctctcaaagg	tttggtctct	attccttaga	3120
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ccagtgccag	atgacgattc	cgcgtgtgac	acttacattg	agcgaatgct	tcgtccgaac	3240
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gcttctctcc	gectgttcta	tgacacagata	ctatatcctt	ttgctttcaa	ttcttctatt	3420
gcatccacta	cgaagagaaa	tactccattt	tcacactgtc	ctcggctcct	aaagctgtct	3480
gtgtatgtcg	ggatgaggtg	gcccagctgt	gattccgcac	aagcatagcc	ttctaaccga	3540
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tgatcctgat	aggtagcttg	gggcttcgtg	atattcttct	gttttgagtc	gctgtatttc	3660
gatagtcttt	tttttcgcat	gtctgttgtc	tggtcggatt	gagtgatcgg	tgacacattcc	3720
attacaaatg	caacgaattt	ctaaatatag	gatgaaaacc	ttgaatggcg	ttcgaagttc	3780

agtttttttc	gagtgcagat	cccatgtata	agtgcacat	aatgtaaatt	tagcaagaag	3840
cactcgaacg	gcggttctgaa	tccgagtttc	ttcttggtg	tagttcagtt	tgttctgtat	3900
aatggaaatc	tggttggtcg	tatatcgatg	aaagaagaac	ctttagggat	gtattgtcta	3960
atcaggggcat	tttgctcctc	acagagcaaa	accctcttgt	ttacacgaga	ccgaaaagag	4020
ctcaagtata	agctgtcttg	gatgcattag	ttagagtgat	tttctattct	gacaaaagtc	4080
gtcgaacgat	atttagtgtc	agataacggg	aaacagtggtg	tggttgccga	aaatacgtat	4140
ctttgcagcg	caattgaggg	gaatctctcc	gttgctatga	ggattgtctc	atgggtgtaat	4200
ggtagcacia	caggtttggg	tctgtttgtc	aagggttcgaa	tccttggtgag	acaacaacag	4260
agaaggggtg	tatcggatag	tgaaacttcc	ggattgcaac	cctttctttt	tggtcttata	4320
tccccccctt	aaattaccgt	attactctct	caacttggtc	ctcgaatttc	tgcaacgaag	4380
cctattaaaa	gcgacctata	agtcaaaagt	ttggcaggat	tgcttgatag	tctttctgtg	4440
gagtggtcag	accgacggct	gtggtcgatt	ctgtcggatt	tggtatattt	ttgaggaaac	4500
gaaaaatcgg	ttatgctccg	taaaactctt	tccactcctt	atgatataat	tccccgacgg	4560
atttctctgc	cgatgtgctc	cgtctggaag	gtgccgccat	cgaggcgccc	ggcgggcata	4620
tgcaccttat	agtcgctttt	cgggtgggagc	ggctgtttgc	tcgacaatgg	ggagatcctt	4680
tcaggcagca	atcaggagaa	tgacacctatc	cgcccggaact	atgtgccgag	cgtagcgtgc	4740
ttttctatgc	cgggccagat	atccggaggc	agccgtgaga	gagatgggtc	tcgtggcttt	4800
ttcgcttcgg	gacgtgtgcc	gctgattacg	ccgtgcgggg	cttgccgtca	gtgatgctgg	4860
aggtttgtag	tcgccatcgt	ccttttccca	tcttgatggt	ggggaagagg	aggctgtcag	4920
agtgtcggat	gtgcgtctgc	tgctgccctt	tctttcgacg	gtagcgactt	ggaacgatag	4980
tcttcgtcct	ctattcttat	gtgagttcga	tataaaggaa	tggcacaaca	cattggttat	5040
tagtgtgttt	attttccaca	cagtgttttt	caggcactta	tattgctttc	agatggtttt	5100
tatctacata	tgaagcccaa	tgacttagaa	gccgccccct	cttccgatca	ttatgcagcc	5160
ggagaatcac	aaaagagtat	gatttacagc	tactgttatt	tttatgggat	gttcgcttag	5220
atcgaactgg	cgttatatct	cgtcccgaat	ggtttacacg	ccaaaatttt	tgcgcttggtg	5280
gtcgctgaaa	actggcgatg	aaactttttg	cttttgccgt	gggaagtga	aaaattacgc	5340
gcac						5344

(2) INFORMATION FOR SEQ ID NO:790

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 565 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...565

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:790

ggacaaagct	accggacgca	tcataccgga	tctgatgtat	aagcattgga	cgagtgggtg	60
gagaccatac	cacatccctt	catcgcgaa	gcgacggagg	aatgatcacc	accggcaaa	120
acatcatgga	gggccaaccc	tacgaggtcc	gatgaaacgg	tggtcgggta	tcgaagattt	180
cagttggagc	cctgacgaca	gaacatagca	tacgccaagc	cgcaagaaaa	cgggcatggc	240
atatttctgt	ctaccaactc	ggacatatat	atctataatc	tggtctccgg	ccggcgacac	300
acatttccga	agggatgatg	ggctacgaca	cctatccgaa	gtagcccccg	acggcaagag	360
cattgcatgg	atcagcatgg	agcgcgatgg	attgaaagcg	atctgaagcg	tcttttcgtg	420
ggcggatctt	gccacaggaa	acgcacccat	gtaaaccac	attcgattac	aatgtggata	480
tgatccaatg	gcaccggaca	gtaagggtat	ctatttcctt	gcctgtaagg	agcagagaca	540
atctggggga	gatcacgctt	gaaaa				565

(2) INFORMATION FOR SEQ ID NO:791

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 618 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...618
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:791

tttccgacct	tttgcccca	tattccgcag	gtctttatcg	aaagaaagct	ttacactggt	60
tgccaactat	aagaggtagc	aaatcagtag	tttagaagca	ttacgagcac	tcccatacctg	120
tgcagagtcg	agatcattgt	ttcttagcaa	aagtacactc	tgaccgacaa	cgtcaaaaaga	180
tatagagcct	tagaaacctt	tgattaggct	tgattttccgg	catagcagga	gtggacgaag	240
ctatgcggtg	cgaatgacac	ttgtgcccc	ttaccaatcg	gcacaccact	cggctacgca	300
tactcgcatc	ccgatgccaa	caaactcgaa	ccgccgaaaa	aagaatcggg	caccttcctc	360
ttcgacaaaa	acacgaacca	taaatggaca	aacatgggtc	gtgaatttcg	agaaaactcga	420
gcctaaaaat	tattcttttg	gtcgcaaaaa	tttcacttct	caaaccaaaa	gcaaaatttt	480
cccgcgccac	tttttcagaa	ccacggatca	caatcttttg	gcaccacaaa	taaaactctg	540
gagccatcgg	tctttttatc	tcagcaagga	tggtaaaatt	cgacccgata	caacaatgcc	600
ctaaaccttt	ttcggtctt					618

(2) INFORMATION FOR SEQ ID NO:792

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 512 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
(ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...512
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:792

ctttgggcta	aaaagatcaa	aaggctggtc	gatttttgtc	tcgcattgat	tttttagcta	60
tttccctgcc	ttttatgctg	atcatagctt	tgatcatttc	ctgcaagacg	ggggggctgc	120
aatcttctca	caagaacgca	tcggtctgga	ggaaagcctt	tcatgctata	taagtttcgc	180
tcaatgaagg	tgaatgagaa	gccaaacaatc	agcctcagct	attccagaaa	aatgattcga	240
ggctgcaaa	gttcggtcgtt	tcctgagagc	ttctcacttg	gatgagttac	cccattctgg	300
aatatcatca	aaggcgatat	ggctatcgta	ggctacaggc	ctgaagggaa	tattacatct	360
gccaaataat	ggaaaagaat	ccggactacg	cctactgtac	gaaataaggc	cgggtctggt	420
ttcctatgct	acgctgacaa	cgctatacgg	atcagatagc	aaaaatgctg	gtgcgtctgg	480
agatggattg	tatacttgca	aaaatcagtt	ct			512

(2) INFORMATION FOR SEQ ID NO:793

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 930 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...930

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:793

attggatcga	tacgagtatc	ggtggcaata	tcggattcta	tatggcgaaa	atagtctgag	60
cggaacagaaa	gattctcgca	catacgattt	tggcggcatt	atcaagttgc	cctaacgctt	120
ccctatggat	tccgtatcga	cagcgatttg	aatacaatac	gaactccggt	tacagcggag	180
gattcaagtc	tggacgatgg	ctttggaatg	cttcgctttc	atacagcttc	ctccgtgaca	240
aggccgtaca	ctgcgtgtca	atggctatga	catcctcggt	cagcgggtcaa	gtatagccgt	300
tctgcttcgg	ccatcaatat	agaagagagc	atgtccaata	cgacggacgc	tacgtgatgg	360
tggactttat	ctaccgatcc	aacgccttca	gtgtgggtgga	tctcgacagc	atcatcagcg	420
tggcaatatg	aatcgtccgg	gccacctttc	ggcgggtggca	gacgaccgtc	ctgatcagac	480
gccacctatc	gcaagagaca	aagtgtgtaa	gtgtttttat	aacgaaccga	tcgagggggcg	540
tgtcaaaaatt	tgattttgtc	gcagccctct	ttctttgtct	cttgacgtgg	ttaggcaacc	600
ggcttcatct	tggaggccct	actttattag	cttttcgaga	catagaagcg	aatcaggcta	660
agattgtatt	tattctgtac	agacacgaaa	aacagtcaat	tgacaatgaa	atcttcccgg	720
aaaatgccat	gcgacatctc	atctatcggt	ttaacagggt	cacacggaac	ctcccactcc	780
ccgacctgcc	atccgacaca	gagcagatag	catcttccat	caatagacca	tagatcctct	840
catgtgagac	catagtatcc	tctcatacga	gaccatagta	tctctcatgt	aagaccatag	900
tatcctctca	tgtaagacca	tagtatcctc				930

(2) INFORMATION FOR SEQ ID NO:794

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 310 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...310

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:794

gggcacgaat	gacacgggta	ttattcctga	ccagcatact	gcccgatgga	gtacttccga	60
taattgggaa	aatacggcat	cctttatctc	acccttgat	aaacgagcaa	tttacaggca	120
tcgcgctgtg	gcaaagcatg	tttggcattc	gttcttcggg	caatggatag	tcgtagtccg	180
caatggaaat	atccgtgtcg	taatcatcgt	ggtatgatat	tttgccgggc	aaaattagca	240
aatacatggc	cgaacatgct	cttttctgag	tgtactgata	ccattcgaga	tggtaaaatc	300
ggatttctac						310

(2) INFORMATION FOR SEQ ID NO:795

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 596 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...596

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:795

gaggaagaac	caatccctct	cggaaaacct	acactcaacg	aactgatggc	aaccctctgg	60
aaggaggaag	cgaatacatc	gaactataca	accctacgac	aaacctgtcg	ttccctctaa	120
attcgccata	ggcatactcc	gcaatggagc	tacaccacca	caactgcact	gccgactgta	180
gccgatacac	tctatcgga	caatacatcg	tctttgccaa	gaagagtggg	ggagtccactg	240
acttcacccc	caagcgcaaa	atgtttgtcac	gatgagcaac	ctgcctcagc	tggcaataaag	300
ggattttacga	tcggactgtt	cgaagaaggc	cttgatcaac	ctctgaagaa	gtggtctatt	360
cacctaaaaat	gctcggagaa	ggaaaatgta	acagacgagg	gggtatcact	ggagccgtat	420
ctccttcgag	actccggatt	cgattccgac	caactgggca	ggcggactcc	atcggcaggg	480
atatgctact	cggctacctn	aactnccaat	cctcaatgca	gatactccca	gtagggctac	540
caataacgaa	acagaagcaa	cggaaaagct	acctgncacg	gcagtatacc	gaagaa	596

(2) INFORMATION FOR SEQ ID NO:796

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2205 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2205

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:796

aagcgggtgtc	gaaagctcga	tgatgcagct	tcctatcgtc	ggatggacgg	ctgatagcag	60
cgtattccga	tctccccgat	gtaatcggtg	tggtggacga	cgagtgaatg	cctatttgtga	120
tgaagaggag	tatgtatctg	ctctcgactg	tgcaacagnt	atctgtccaa	gtatccggag	180
gcttcctcgt	atcaactgct	gaaaagctct	cgggcttcgc	gcattttggc	ttctttcgtc	240
aagtggacta	ttccctccgg	ctgcatacac	gcctnccgaa	gagcatgcgg	atcgatcgcg	300
caatgtcggc	tccgtcctca	tcagtctgna	ctggctggat	atgatggctc	gcaagctgct	360
gatataaggc	aggaaggatc	tgcacttgta	tggaaaggaa	cacctttttg	gaccggaaaag	420
cattcggaca	cagggccggc	catatgaaaa	tggattcgat	ccgctgtaca	cttccggatc	480

tgcccaaggg	gtctatctgg	tgaagcctc	ggcagagcag	tgtgtactcg	aaaagaccag	540
ccggtgcccc	aatacagtct	gctccatgta	tcggatctct	tcttcctcct	cagcaggcca	600
tgccgggtgt	gcaggtaactc	gatgcgctga	cgggcaaccc	gtggaaggcg	catcgggtgga	660
tgcttccatg	cgttattcta	tagaccatcg	gttcataccc	tttctcctac	ggatcgggtat	720
ggtcgggatcg	atctgcgaaa	agctacaatc	gcttcctccc	ctataccgac	ggtgaccgct	780
cgtacccggtt	gtttctgcct	atacctacaa	acaggatcag	gtggatcttt	ccagaagaat	840
gagcgcaagt	atatcgcttc	cacggatcgc	gccatctatc	gtccgggcag	aaagtccatt	900
tcttcggcca	gtgcgaccgg	ataggttatg	cgtggaggac	gcacgcgcca	tcggtggatc	960
ggaagttgaa	gtcgtgctgg	agatgctaac	tccaaggaga	tcggtcggct	gctatgccag	1020
gcagatgagt	gggacgtttc	tccggtagct	tcgacctccc	gacagggatc	ttgaatggct	1080
gttcggacta	cgagtgggag	gggatacata	tccctttagt	gtggaaggta	caagcggcct	1140
acattcgaag	tcggcctccg	gagtcocgac	gctgcaatgc	tatgggcgac	accctccgca	1200
tacgaggcga	agccaagacc	tttacggaat	cggatgcgca	ggagctacgg	tgaactatcg	1260
gctgagcctg	acccctatac	gcgtcgggtg	tggggtagac	ctgtggccga	tagggtcgta	1320
cagccgggtga	ggcagtggta	gatgaatcgg	gttacttcgt	catacctgtt	tctgtctcgc	1380
gccgggaagga	cgggaagact	attcctactg	cctctacacg	catcggcgga	tgtgaccgcc	1440
cccgggtggcg	agagcgaggc	cgcctgactc	gaatacccg	gggaaaagaa	cccaagaggg	1500
tggacgtcga	agtgggtaat	acattcgtgc	caacgaagac	aactggcttg	ccacctctct	1560
gccggatcga	cattctccct	taccaatact	tccggacaga	cgggtggagg	atccatccct	1620
acttcctgtg	cgatgccgac	aatgaacgta	tcggtcggct	ttatacgag	cttcagggtgt	1680
ggtgacgcct	gctccggccg	aatggggcaa	gttgcttcgg	gacagtaccg	attgctgttt	1740
ggcgagagtg	gcggagagga	ttccactttg	ttacgaagga	cgtttatctc	ttccgtccga	1800
aagatcgta	gtttcgaatc	cctcccaagg	cctttggaca	tatgtggcgg	aggagaaata	1860
cgcagtcacc	gccctgcccc	catcctggtc	ggtgctactc	ccaaggatgc	gatgctcagg	1920
agttgtatct	gttctacgac	ctgactcagg	caggccgatt	atcgaaagga	agatgatcgc	1980
ttgccggccg	ggtgagatcg	tcgagatagg	ccgatgcttc	cggcagctcc	gttgccggag	2040
agtatgaatg	tttctctcat	tatgtatatg	gagggaggct	gtatagtcga	agcatagatc	2100
tggaacgaga	ctgccccaa	gagagataaa	gatgtcgtgg	agtactttcc	gcgacagctc	2160
cgaacctggtg	agaaagagac	atggaagctc	cgtctcgcgc	atgcg		2205

(2) INFORMATION FOR SEQ ID NO:797

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 653 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...653

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:797

gcatggcttg	ttttgacctc	tctgcggcta	tggggggaga	ggctgaaacc	gacaatggct	60
gcgtagcggg	ctgatgcata	ccgatcatat	acattatagg	tgggtggata	taccctgcat	120
ggaggactgg	tggccgatgc	cttactcgct	ctattgtccg	tggcaaaatg	gataggagcg	180
accagtncaa	actctaaata	gccttacaaa	ccttgatgat	tacgcttgat	ttccggcata	240
gcagggtgga	cgaagctatg	cgggtgcgaa	tgacacttgt	gcccccttac	caatggcaca	300
ccactcggca	tacgcatact	gcgatccgga	tgccaacaaa	ctcaaccgcc	gaaaaaagga	360
atcgggcacc	ttcctcttcg	acaaaaacac	gaccataaat	ggacaaaaca	tggttcgtga	420
atttcgagaa	actcgagcct	aaaattattc	ttttggctcg	caaaaatttc	acttctcaaa	480
ccaaaagcaa	attttcccg	gccacgtttt	tcagaaccac	ggatcacaa	cttttggcac	540
acaaataaaa	ctctcggagc	catcgggtctt	tttatctcag	caaggatgta	aaattcgacc	600
gattacacat	gcctaaacct	ttttcgctag	gcattgtata	gagtcatgtt	ttc	653

(2) INFORMATION FOR SEQ ID NO:798

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2495 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2495

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:798

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ccacccatgg gagagtagtg agtgcattct tgaacatctg ttcgaaacca ggaacttcag      60
gatagagagg ttcactgaag gatggaaacg gataccgcct tgtacggacc gatggcattg      120
ttgaactgaa cgcggtagcc gatgtttcct gtaccttacc ttggtcactc acccagggta      180
cacggaatgt gaataccgat cgggctctac gatacgctcg atgataccgt tcttttcgaa      240
ctcggaatgt gggtgtacac ttcttctaca gagagaagaa cttccttcac tgctggagga      300
attcgctttc gccgggggtgc ttagcctcca gcattgtcat aattcctggg tcttcataga      360
gaactctaaa taatagtaag agattactcc ggaaaagtag ctaatgtgtt tggaactttc      420
aagccttttc tcaaaaataa atttagtaag atcctttagt tccaaatcac aaactaacc      480
ttccgaatat agctttttca gtacataaat cagtatccga atacgtcgcc aaaagattag      540
tatattgact tgattcaaaag gcagcatgca tcatgtgtt aatggaggcg ttgtcggtat      600
cgaagcctcg ccaaaacgca taccgaaaca tctcacaagc atagccttta atctctatct      660
cattatatcc aaatgtgtct cggatggcga acactcaccg gccggccttg tttttgaggt      720
cggaccgatg gataagggag ctttatcatc ctgcacagtt accatcctac tgtgaaaaaa      780
tgacctgaaa ggggtgattct tgataacctc ctcttttttc aaaggtctct cataatttat      840
tgatattcac tgagttactc gaaattggcg aataaaaaaa gcctagtttg tgaaagttgg      900
aacttcatcg tattatgagt actgaaaaga tggggctgtg acaaaaaatga attttgacac      960
agcccccatc atgagtatct gccgatcgat atatatccga aagaagtcgg tatcggcagc      1020
taaaaagacg tttacttgcc gtagcgagct ttcagtatct ggatcatatc tgcagacagg      1080
aatcgagatc gtaatccggc ttccaatccc attcactacg agcacaaaaat catccaatga      1140
gtttggccac gattcggcaa taccttgacg aagaggtcga cttcgtaatt cataacaaaa      1200
tcaggtaacca gcttcttcac tgctgcgcta tctgcgaggg ttcgaaactc atggcagtg      1260
tggtgaacga attggatgta ccagacgggc agggtcagct tccatcagct ccacgcatgc      1320
acgagagcat cgggcatata catcatatcc atataagtac cctctttaat cgacaagtga      1380
agcgctcttc tttgacagct gcataataaa tatccacggc aagtcgcgtc ttcaccacc      1440
ggggagggtg acgttgagga tcaaaccggg aaacgaaccg aacgtgtatc tacaccgaaa      1500
cgcttggtgt agtagtcacc aaaagctcgc cactgacctt cgttactccg tacatggtct      1560
tgggacgcga atagtatcct ggggggtcct atccttagga gtatcattgc cgaaagccc      1620
atagagctgg gcgtaaacac tgcacaattc ttttcacgag ctacttcagt gtattgaaaa      1680
gtcctcccag accaatatgc catgctaact gaggttggct tctgctacgg cactgagaag      1740
ggcagccaaa ttgtaaatcg tatcacttta tacttatcca ccacttctgc tatttgcttg      1800
gcattggtga tgttactatt tcggcaggac ccgctttcga gtagttcgcc cttaggctct      1860
gcccggggat ataaccgctt tcaacgtttc cctgaggata acgctttctc actccatagt      1920
caactccgat ccgatctgtc cggtagagcc gataatcagg jgttcttcat tctactactc      1980
cggatttgct ttaagttagt tgggttcata aaattcgctg caaaagtatg gattattctc      2040
ataaatatgc gactaaaggc agtacaaaat caatgaagac gaaaagaaag acaaagacct      2100
ctccacagat tctgacgaat aaatgccatt ccctctttga aggggtttta gccgaacagc      2160
ataagaaaaag agaacgatca agtgcgaaat catttgattt caagcgatac ctatatgttg      2220
ggattgtcga ttaggcggaa taactatact tttgttgaaa caaaacaata ttttttcgta      2280
tgacaacaca tcacataaag aaacatactc acccaataca aagctaagtg acttgatatg      2340
cgagaattac gattactact ggtcattacg cgctttggta tttcgcttgg tttcgagaa      2400
agagcatacg agaagtctgt gaggacaata aggtaaacac caataccctc tggctgtaat      2460
caatgcactt atcaaccgct ccgaacaccc ttccg      2495

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(2) INFORMATION FOR SEQ ID NO:799

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3427 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3427

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:799

gtcaagcagt	gcatcaagct	ctacaccgag	gaacgtcgtc	gccttgcccc	tatatgctct	60
cgctcgccga	cctgtatttc	cctcagatcg	aagagacatc	gaccgtcata	acctcccgat	120
cgagctgaag	tacctgacca	tcgtggatcg	gctctcaacc	ctacggcagt	atcgccggcc	180
ggagcaagccg	gtatctgcag	ttcatgctgg	ctacgggcaa	gatatacgga	ctcactataa	240
acagctcgtc	gacgaacggc	tggatctgca	gaaaagtaca	gaggctgcct	gccgtacttc	300
aaggacatgt	acgacctcta	tcgcgactgg	ctcctctgca	tcgggcttat	aactgcgga	360
tcggcaatgt	gaacaaagcc	atccgaatgt	ccgtggcaag	accgacttct	gggagatcta	420
tccctacctt	cctcgcgaaa	ccggaactac	atcccgtctt	tcacgtgtgc	gtactatgcc	480
atgcactacc	tatcgaacat	gagatctgtg	ccggagagac	cgccgttcc	ttggctacga	540
tacgattatg	ctgtcccgc	aagtatcttt	cgatcgcat	cgtctatttc	cggtgtgagc	600
aacgacgaat	tgcaactgct	caaccctcaa	tacaaaagg	gatcatccc	ggtaataccc	660
agctgtgccc	actacgcctt	cccgtccttc	catcaagaaa	ttggacaagg	ttcgcgattc	720
gctttatttc	cccgaattga	ggcttcggta	tcggatttcc	ctgagcaagg	cggaacaac	780
tcggaggatc	gggacgaacc	gccatcttcc	ataatgtcaa	gcaaggtag	acgtcttgct	840
catcgccaaa	cgttatggca	ctacggtagc	agccattaag	aggcaaacgg	cttgaagtcc	900
tcctccgtca	agcccgggtca	gaggctgcaa	acactaaaag	ttcggcttcc	ggcaccaaga	960
aaaagagcaa	gtacagtggc	agcgaaagtc	ccgcaggagg	aaataatcct	cgcccttcc	1020
cttcgcaatg	acccgaaccg	tctatcttct	ccaagacgta	tgacaagaag	cctccggaaa	1080
aaaggtagtc	gtataagcct	gcgagcaata	aaaaaagcgg	tgtgcccagt	cgctgtttgg	1140
gcgatctcgg	tacaccgttt	ctcttagagg	gtcttagacc	tgattactga	cgctcttccg	1200
ttgtcgcttc	aggagcaatt	ttcttaccaa	accctgcaat	acatttccgg	ggcctaactc	1260
cataaagtgg	tcggaccatc	ggctgtcata	ttcagcacac	tctgtgtcca	gcgaaccggg	1320
gcctcagctg	tgctatcagg	ttctttttaa	tctctgccgg	atcggtgacg	gcgaagccgt	1380
tacgttctga	tagatggggc	agatcggtcg	actgatcgta	gctcctcgat	ggcttttggc	1440
agctcttcac	gagccgggtc	catcagaggg	aatggaatgc	tcaccgaca	gcgagcttaa	1500
gagcacgctt	ggctccggct	ccttgagcag	ttcgcaagct	ctgtccactc	cttctaccga	1560
accggataaa	cgatctgtcc	cgggcagttg	tagttggccg	gtacgacaac	ttcatcgtea	1620
cttgggcaca	gatttcttcc	accttttcat	caggcagacc	cagtacgccg	ccatagtcga	1680
ggggcgta	tcgcatgctt	tctgcatggc	catggacggt	tcgatacgag	acgaagacca	1740
tcttcgaagg	tcattggcacc	tgctcaacca	atgccgaaaa	ctctccgagc	gaatggcctg	1800
ccaccatata	gggcggaagt	cttcgcccat	cgtcttgccc	agaatcaccg	agtggaggaa	1860
gacgccggct	gggtcacttt	ggtttggttc	agctcctctg	ccgtgccggt	gagaggatgt	1920
ccgtaatgcg	aaagccta	atctcattgg	ctttttcaaa	tatgctttgg	cctcgggggt	1980
ctgttcgtac	aggtcttttc	ccattcctag	aactgtgtct	ccgtgaccgg	gaatacaaat	2040
gctttcatct	ctgtttcgta	ttgttttgat	tatgattccg	attgtttctg	ttcacctctt	2100
taattcgaag	acctatctct	aaaaacgata	gcgatactct	ccgaactcga	cttctatcct	2160
tacactcgct	ccagtacttt	taccagtact	tcccattgtc	gagctcggat	tcgatatgaa	2220
tcctttcgtc	ggcgagtggt	gttcggacct	accgagatca	tgtccatata	tcacttcggg	2280
cggcattacg	ccttggaatga	tacgcattcc	agaccggcat	gcataccctg	tacttcgggc	2340
ttttggccgt	aaactcttcg	aagactttgc	tcataccttc	gagaatgtgc	gactggatat	2400
tggttgccag	cgttggtacg	aggcgtcgaa	ttccactcgt	gctcctgcca	tgagaaaaac	2460
ctctcgatgg	ccgatgctac	ccacatcttg	tgcgattcga	agagctacgc	accaggaaac	2520
gtacggagat	tgacccttcc	ttagccgtat	caacgccaga	ttggatgatg	actctaccgt	2580
accggggaaa	tcttgacat	ggactgcggg	ccattgacgc	aggcttccac	ggcattgatc	2640
agacagcttg	gatctcttcg	ggaataatca	ttcggggaca	ttcgatacga	cttgctcgaa	2700
cttgatgttt	tcctctatgc	cgctgaattc	cttacggaac	aaatctggta	gtcggatacc	2760
agttcccaga	cagcttcggc	ctcttcttcc	tgatgggtgat	aacggcaaac	gcttcgcgcg	2820

gaatagcatt	gcggagcgt	ccccctctac	ccatgccaa	cgagcaccat	agaatcctac	2880
agcctctttc	agaatctgaa	catcagttta	ttggcattgg	cacgtccgag	gtgaatatcg	2940
cacccgaatg	tccgcctttg	agtcctgtca	aagatatctt	tacgcctatt	cttcgtccga	3000
aaccagctct	tctctcttat	attcgagcgt	gacattgaat	caatacctcc	cgcacagcct	3060
acgaagagct	tgccttcttc	ctccgaacta	tattgagcag	gatgtcacca	cgagagaacc	3120
cgggccttgag	accattgcac	cgtccattcc	cacttcttca	ttaatagtga	aaagagcttc	3180
cagcgaccat	gtttgagcat	tgggtctgcc	atagccgcca	tggcataagc	cactcgatac	3240
cgttatcggc	tcccagagta	gtgcctcgag	ctttcaccca	ctcccgtcga	tatatgcata	3300
gatggggtct	ttggtgaaat	catgatcgat	gtcgaattct	tttgaggcac	catatccaag	3360
tgcgattgga	gggtcacgat	cgtttgtttt	ccatgcccgg	tgtggccggc	ttgcgaatga	3420
tgacatt						3427

(2) INFORMATION FOR SEQ ID NO:800

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 682 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...682

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:800

gcccttggac	tctccaggat	ccnccgaatg	ttctctgcc	cgccttggtc	tcattcgaca	60
cagagaccga	ctcgaaagat	gcacttnggg	ccaatatcta	tggcatagac	gccttttggn	120
gggggacgcc	acacggcccg	aatagacaaa	ttcccatccg	gaagtagtac	ttaacccaac	180
aaaaaaccaa	gaaataagca	atgaatatcg	ataattcttc	cacaacgatt	oagggaaaga	240
ccatctcgtc	agggttgac	gcattaaaaa	cagctttcta	agtactttta	tagtgttaaa	300
gccccgttag	ttatgtatca	ttctctattt	gaaagcctct	gcaggttccg	gacccacgga	360
tagagcgtaa	aaaaatttat	cctcttgatt	tttactgctg	atcgttttcc	tctctacact	420
ctcaggcaat	acctcttggt	agagattgaa	gattatgccg	aggaatacga	agaagaattg	480
aaaagtctat	cgaaatgctt	accggccatc	agcttatgca	taccatgcct	tctcatgata	540
tctcaacagg	agcatcagct	ggtggatgta	gaagcttttg	aggggcttta	agcgatggat	600
tgaagcttta	tcttcggcac	ttcgggtaaa	catattgatt	gatggcaaga	cgatgccggg	660
agtgaagaac	tctctttcga	ta				682

(2) INFORMATION FOR SEQ ID NO:801

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 645 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...645

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:801

cagccagtgt	tcccagttat	ataaaacaac	cccagggatg	cctttactaa	cccctgaggt	60
tcttttaa	aatgtgtcc	attgccgat	ttcgtctatg	ttcagtcac	cgttcgtcgt	120
tgaatcgg	aaatctttt	acatggcgtg	aaagaggcca	agaagccaca	gacaatccct	180
gggaagttg	ctataagatt	ggccaatcct	tcttcttacg	aataaaaacca	tatcctaccc	240
acagtcgcag	ttgataacctg	cgaccattgg	ctgaagccaa	tcacctttat	gtccgagaga	300
ttggaaccaa	tctgtggaat	ataagaaaca	tacatcgcca	tagtggtgcc	gtggcaatcc	360
aaccgagaac	tgacaaaaat	ttttcttgat	tcttttacta	ccatgttttag	ttcttgtgtt	420
tagcaaagat	agtattcgca	attaatcaaa	gtaggtat	aacaaagaaa	aatatatgag	480
gtcgatgatt	gtttaaacac	tgtatgttgc	gccttctctg	atgctatttc	tgtgccggct	540
agctctctga	ggttgtagca	gtgcagattc	gattctcaaa	tatccatctg	attattgtta	600
cacttgtgaa	aattttcatg	gccgacatcc	gaataaaaaga	atacc		645

(2) INFORMATION FOR SEQ ID NO:802

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 754 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...754

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:802

ggaaattacc	ctttaatctt	ttctatttag	gcaaacactc	aaaaaataat	tttatgtatt	60
tgtccataac	ggagaatatg	cttatggcca	agataccttc	ctactgtttc	aaggccaata	120
ggtaagaata	ttcgcaaagt	gcttcgtaaa	ttatgcggaa	acagcccaaa	tattttattgt	180
tctgtccaga	attggagaga	tgaatacaat	cctttatgta	ctaaatgaca	agatatatgt	240
ttacaagttg	cacaaatgaa	agaatacgag	ttgagcgatt	attttaaaca	cttcctcggt	300
gaaattgtag	tatacctcaa	aggaggggat	tgttcgaggt	tgcctat	gggactttat	360
atgtttttac	tctgcctcaa	aaaaaaaaaga	ataggtggtt	atggtgctgc	agtcgtatac	420
gaaagctaga	agttgaatac	ccgcaggaag	taacgaaaaa	atcaaaaaca	acacaaaaaa	480
acagaatcgg	gactagagcc	gggggcatag	ggaatgggta	ttttccct	catggggatt	540
cctgcgccaa	aagctatatc	tttgtaaatg	gaaccaatca	gcgtggaaga	tttgtaatgc	600
ttgcaacca	cgagaaaaaa	tgctaaaaca	tttcttctag	aaagctcttt	cgacagctat	660
tctccaatgg	gagtggtgca	gccctttgtg	cgaagggaagt	tttacaatt	aaaagcataa	720
agatatgagc	tatctttcac	atccgaatcg	gtgt			754

(2) INFORMATION FOR SEQ ID NO:803

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 377 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...377

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:803

gctgtgtcta ngtttggggn acccggtatc agctttctct atttctgcca aagatcaatt	60
atcgtcacgt tggtttggtc tatcagggat ttataaaaca aggactctac cccacgggat	120
cgaaaacttt agagactttc caatcttgga gacgtttaag ctgcccattc tggattagga	180
aaaatgttgg caatgactga cattgaatga caaagctgct tcccttcgc tatcgttcac	240
tgtgaccaag ggagtgtacg cgttgcattc tgccagaaat acaagtcctt gtcgcagaaa	300
tctcatatat ctgaaatcca ttgttgcaat gtcgttgata caggctcgct gttcttttac	360
caaagaaggt gaccatt	377

(2) INFORMATION FOR SEQ ID NO:804

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 756 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...756

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:804

ggattttgtc tggttaacaac aaacacagca atgaacatta acaactacaa atcaaatacg	60
aggaggctct acagcaggct gtggagctga cccgtcggac ggacagcagg ccatcgaacc	120
gcagcacctg ctcaaggccg ttatggacag ggcgaaagcc tgaccgattt cctttttgcc	180
aagatggggc tgaacagggc agtatcgcca cggctgtgga caaactgata gagaaactgc	240
cccattatcg ggtggcgaac cctatctgtc gcatgagacc aatcagggtg tacagcagcg	300
gaggacgcag cgcaccggat gaaggacaaa tacgtctctt tgggcacatc gtgctggcta	360
ttctgactac gcgatgcgag gcgtccactc tgtcaaggat gccggagcca ccgaacagct	420
tctgcagtcg gccatcgaag acttcggaag gggcgcaacg tgaccagtca gaggcgagg	480
gaacagtaca tgcactggag aaatatgccg tcaatctctg tcagcgtgct cgcgatggca	540
gttgatccc gtgatcggtc gcgatgacga gatcaggcga gtgctgcaat tctctctcga	600
cgcaccaaga acaatcctat ccttatcggt gagccgggtg ggcaagacgg ccatagccga	660
gggcttggtc tacaggatcg tgcgtgcgac gtgccggaga atctgcgcaa caagcagata	720
ttctctctcg acatggtgcc ttgatcgccg gagcca	756

(2) INFORMATION FOR SEQ ID NO:805

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 424 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...424

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:805

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ggcaacgaaa aattccgtgt aaacaaataa ttcgcctcga caaaaaatag gctatcataa      60
aaccattcaa aggagtagct cctccgaaaag aactcgtaag caagtagcat ctcgccccta      120
cgacgtcctt aattcagaag aagctcgaaa gaagcgaagg gcaacgaaaa gtcgctctat      180
catattatcc gtccgggata gatttccctg taggaaaaga tgaacacgat gcggacgtgt      240
atgaaaagct gccgagaact tcagaatggt ccaagaaaaa ggctggctcg tacagacaca      300
gaagaaaact actacgttta tgcccagacc atgaatggca aaagcagtag ggncttgtag      360
taggtgcata tgtagaggac tatatgaacg gctgatcaaa gaagcatgag ctggacacgc      420
cgcg                                         424

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(2) INFORMATION FOR SEQ ID NO:806

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 622 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...622

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:806

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gacatgacta tctccgcca cgtgtcttgc aactcttttg caatatagag gtcttgcgat      60
ttttcaaggt gttgcgacag atgaaaagcg actcataaca cctttatcag cctttcgcct      120
ttctcttctt gggactcttg aaaaatcttt gacattgggt cttcatttgg acgttccgat      180
tcaacacact gctctttaat tgagagcggt ttatttcgct ctcatttctt ttcattggaa      240
tacccttgaa acaagttccc ggatggcaac aggatctacc ttgccgtttt ggtttctgtc      300
atacttactt aatttttnatt gntatacaat tcactgttca ttttttgccg gtatatttac      360
ctgcaaagat gaatacatcc actatctaag attgcccgat aatgggggtg taccagcagg      420
gctacatcct ttcgttcata cttttttgtg ggagatgttc attgatgtcc atcaatacaa      480
tcgttcgatt tatctgcttt cacacatttc cactgttcaag tgaagaaagt caaaggacgg      540
ttcttcgata taccctctcg cttatatcgc tcatcgaatc gtgatattct gaagacacat      600
tctncaccg acatattcga cg                                         622

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(2) INFORMATION FOR SEQ ID NO:807

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 464 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...464

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:807

gtaatagtg	ggcgcatc	gcaggatt	gtcaatcc	gcggtttg	ttttggtg	60
tatcggtac	gatccggaa	ggggctgc	tcaacgct	cagatagcc	aatatctc	120
cgccaaagg	catttcgct	gctgacac	tatcgcttg	cgacatagc	tgaaaagg	180
aaactccga	agccaatt	accctcct	tttcggggt	tgcttttgc	gtattata	240
gttctttcc	ataagaat	atctaaaa	gatattgct	tccggtaaa	aatgagatt	300
tatcttga	ttcctaact	cccaagttt	accgatagc	atagaaaa	agaccattg	360
acaataact	ttctatcc	tcatattg	cagacagac	caagcattg	ttcgacgaa	420
gtaaggagt	cttcatgc	cag	ttttgcga	cctcaagt	gga	464

(2) INFORMATION FOR SEQ ID NO:808

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 847 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...847

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:808

ggttggttc	ctgtatcc	ttcttcgt	caaaactt	gaagcctc	gacatccg	60
gattataga	gagaatgg	taaaaact	tcgaactc	gtcggaac	gagctcat	120
tagtgtag	aaagcaag	gtcttggt	ggctaaca	gtgccaat	gagataaa	180
aaagtggt	ttgagaaa	aagaatct	cggtagag	atgtactg	atagagtg	240
acagtggt	gatagcca	aaaagccc	attaatcg	atagtcca	tccttagg	300
ttataaga	tattaatt	ttggagag	tcagatat	cacgtatt	agtcgcgt	360
actttttt	aaatctcc	tctcataa	tgaactcc	taccattat	ccaaggat	420
tatttatcg	ctaattct	tcctgaga	agtcttta	tgcttttt	taccatcc	480
tcttaga	gcatttc	taccatga	cgaggggc	tatttatcg	ctaattct	540
gcctgaga	agtcttta	cgcttctt	tatgatcc	tctcaca	gcatttc	600
taccata	cgcatggg	aatttacc	ctaattca	gcctgaga	agtcttta	660
cgcttttt	taccatcc	tcttagat	gcatttc	taccatga	cgaggggc	720
tatttatcg	ctaattct	gccttaga	agtcttta	cgcttctt	tacgatcc	780
tctccaat	gcaactcc	taccattat	ccaagggt	atttatcg	taattctt	840
cctggag						847

(2) INFORMATION FOR SEQ ID NO:809

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 569 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...569

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:809

gcgaattatt	acaacgtcca	agttgttcgt	acgtgcagcc	acaacagcct	gaggtaataa	60
gtagtagcat	cgggattctt	tatcccattc	aggatctctg	tgctcggttg	tagtcgcgat	120
tgaggatatt	ggccacggca	gcattgtgct	ctcgggtctta	ccgaaagccg	ctacagcctg	180
ggcataattg	ccctctgcag	atagagcaaa	ccaagagctt	cgcccaattc	gggcacattg	240
gcagcgagcc	gaaatactgc	ttagcctgct	ctacattacc	ctcgtttaaga	gccatagtcc	300
aagggttcata	tcccgtttct	gcattgggct	tcacgcttgc	agcttttgga	accaagtccg	360
agcaccctcc	aaatcacccg	tgcgataacg	cacataccga	tattgggtata	agcacgatag	420
tcacccggat	agatctgagt	accaccttgt	aaatatcttc	cttttgagca	ggagattcga	480
gcagagtaca	tatagagcag	ctcttcacgt	cagccggccg	ggctctggctg	cagacgttgt	540
ctgtatcgtc	tacctagatt	cgacattgg				569

(2) INFORMATION FOR SEQ ID NO:810

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 608 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:810

cgacaacagc	cgactgcaca	tcacctatat	gaacgtcgcc	gtaccgtttt	gatgaagaag	60
tgcgcgagct	ccttttctct	ctatgccgct	ccggtgctaa	gttcaagacg	gcttccagct	120
ctaaggtgtg	gttgccggac	aacaagatca	ccagaaaacac	ggtcgcgatc	tgaacctgaa	180
tcctatcgtc	ctcgaaactcg	tgctcggtatc	aattacagtg	ctttcaatct	ctatggttct	240
tataccttac	gcccctgttc	cgcagtgga	aaggacctga	tacacgcgatg	ttcgcacatg	300
cttcgggcttt	ggtttctaaa	aacgaaaaag	caatgaaacg	ttttttttga	ccaccgctat	360
actgctgtcc	tccgtgcttg	cctcttacgc	cgcagccttc	cttcggccgt	tcgcgatacg	420
gtgattcgty	ccggggagaa	accattatga	tcaaggatgg	tgaggacca	tttcgaggta	480
attatacagg	gtccatgcct	tccggagata	cgatccgaaa	cgaaaagata	ttcagagggt	540
ctatcgcaat	ggtcgcagca	tcgaacaacg	ctttcggaat	actttgataa	tcggccgaca	600
gggataag						608

(2) INFORMATION FOR SEQ ID NO:811

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1130 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1130
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:811

```

acggctcctgc ttgagcatgt attgcgctgt tgcaaagtcc gattgtacta atgagagccg      60
acagataaccg aggatcctgc tggcaaagct gctgacctg aatcgtctgc gctcatcgct      120
accgcccagt atgagctgat agtcctggga gaaactatta ccagcgggaa gcgaccgata      180
tgatcgctca gtcgttatat tctttcttat tccgacgcag taccttgtgc tccccggac      240
gaataaaagg agcagctcta tcccatcgcc gctttcatcc cgataaagcc cctgaacagg      300
gccatttctt ctccatgtct gacaaccata ttgtccggtg cggaagatga ctgcgacaga      360
aagagaggaa atgcagcgca tccagcagat tatcttgccc attccattgt tccccaccag      420
acagttcact ttgggcgaaa acggcaatcg gcagctgcga tactcttaaa attgacgata      480
tgagattctt tatgatcatt ctcgttgggg taagatagag ggtggaggac tgtctcgct      540
tctgtcaaac gaatacctac ttccgtgata cctgaaagag tcggtacctc atattgtgct      600
ttaactctat cttataaaga cccgaatagg gaaaacggcg gagatcggca ggcgaaaccg      660
gttttgctgc ttggcaaccc cttttcgttc cactgttgcg gcttgctggc caaagtcaga      720
tccacagagt ccgcaagatc agacgtcttc ccactgaaac ctcgatatgc aatgccaaat      780
cgcgatttca taccgattgt catggcggat cagcagctcc aaagaatatg agcagtatag      840
tccggtatga ggatttcgta gtcgagcaca tcgcgcttct gcaccttcca tgaggcacct      900
gacgatacag tattcgctcg tccttaacngt agtgcaagac acaagccaag catatcccca      960
atgcaaccag aaaaaaactg ttgcgccttc ggacttgctt tcgtaccggc aagcacccat      1020
ctccctttat ctttctttct cttttcctgg tcggctttct gacgtggaag tgctttgacg      1080
cggtggtctg cggcactggc caccacagct ctggcttctt tcatacgtcg      1130

```

(2) INFORMATION FOR SEQ ID NO:812

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2193 basepairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2193
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:812

```

agccataaac tgcggccgta ttctattatc ttgtttccat aatcatggat attatgaata      60
acgatctcca atttactatg gtagctaaga ccctttatgg ttggaggatg tcttggctgc      120

```


cgaactaaca	gccttggggtg	ctgaggagta	accgtcggcc	ggcgtatggt	cagttttcga	180
ggagataaga	ggatgcctat	cttgctaate	tccggttgcg	tacagcactg	cgcatattga	240
aaccttaata	actttccatg	cgaagacgac	agatgaaatt	tatgaaaggc	tcagcttttc	300
gattggacga	ccgttatctc	atcggatcaa	actttctcca	ttgttccgtc	gtttattccg	360
attcgttcaa	gaacagtcag	tatataagtt	atgtaccaa	gatgctttgg	tggatttctt	420
cagtgatcgt	gagggcaaac	gccctctgtc	cggctctcca	atcccgatat	tttactgaac	480
atacatgtgt	gcacgaggaa	gtaacctgtc	cgctcgatag	ttcgggcat	agtctgcaca	540
gcgaggctat	cgtgtggccg	aaacgactgc	tcctctaaat	gaggtgttgc	tgccgggtatc	600
ttgctcaaag	ccggttggga	cggtagtacg	gatttgacga	tcctatgtgt	ggatccggaa	660
cgttcctgat	cgaagctgcc	ctgattcatg	caatattgct	cccgttatct	ataggcgagg	720
ctttgctttc	cagcgtgggc	ggatttccgat	ctcgatctat	atgatgagtt	gttccatgac	780
gacatgcgga	acgtgtattc	gatcatatca	tctacggttc	cgataattttg	ccaaggccgt	840
ggctgcgggc	agaagtaacg	tggagcgaag	cggctctggc	agtatatctc	tctgatgtgc	900
cttcccatgc	agcagcgtec	gaagcctgaa	tcaaggctat	gctggtgatg	aatcctccct	960
atggagaacg	tatcaaagtg	aggacatgca	gcagttgtat	accatgatcg	gagagcgact	1020
caagcataat	atgcagggtg	ctctgcatgg	attctggctt	tcaagccgga	gcatttcatc	1080
atatcggcct	tcgtcagttc	catcgagaaa	agttgatgaa	tggagcttgg	aatgtgagtt	1140
gcgaggttat	gaactctttg	agggacgacg	cgattctttg	ccgaaagaaa	aagtcgtcga	1200
gccgaaggag	aacaaggcgt	aggacgagaa	tcgaccgtcg	tgacgtttct	gccggaaggg	1260
aaaaacgctc	caacccatgc	atcgagaaaa	taagtctcct	tatcgttctc	ctcgtcctga	1320
taacctttca	gaacttccga	taaaaggaaa	aaagagcata	atgatgagca	gcacgagagg	1380
ctcgtctggc	gaacgatagg	ttccgatctt	cggatgaatc	taaaggaggac	ctcgcaaatc	1440
ctcttcaaag	cggattcagg	tgatccgcaa	gatgaataat	aaagaataga	aaatcaaata	1500
caatagataa	atgaagaagc	aatcttccaa	caactatttc	tgtctgtttg	tgcccttaca	1560
gtggccttcc	ttgttcggct	cagtctcctg	aaacgagtgg	taaggagttt	actcttgcca	1620
actgatgccc	ggaggaaaaag	agttttataa	cttttaccct	gaatactggt	cggtttgcaa	1680
tggatgggag	acaattatgt	ctttatcgag	ggtgagattt	agtttttaat	aaggcgaatg	1740
gcaaatacggc	tcagacgacc	agatttctgc	tgccgatctc	aatgcactca	tgccggaggg	1800
atgcaaattt	cagcgactga	tgctttccct	tcattccgca	cactcgatgc	cggacgggga	1860
ctgtcgttct	atttacccaa	ggaggattag	tcggattcga	tatgcttgct	caaagggtgac	1920
ttatcttttc	gataccaatg	aggagacggc	ttctttggat	tttctcctgt	gggagaccgt	1980
gttgccctatg	tcagaaaacca	taacctttaa	ttgtctgtgg	aggtaaatgt	ggagaaggta	2040
tgtaacgagc	tatcgctgga	ctatcgatgg	aactgagact	ctcgtatatg	gccaggccgt	2100
acaccagggtg	aattcgggtat	cgaaaaaggt	acattctggt	ctccaaaagg	gagctgcttg	2160
ctttctatcg	aatggatcag	agtatggtga	agc			2193

(2) INFORMATION FOR SEQ ID NO:813

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 770 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...770

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:813

gcattccact	gtacgggatt	gtggctggct	gtgatgatga	taccgccatg	gcaccacagc	60
ccgtgacggc	catttcggta	gtgggagtcg	tggccaaact	atatacgacca	catcgcatcc	120
cattcccatg	agatgcccga	aaacgacttc	ttgacctaga	gtccggacgg	gcgagcatcc	180
ctaccgacta	cgatagcggg	cgtttgtttt	tagttaactt	tttgatgaaa	tgagcatagg	240
cagcttgaat	tgggctatgc	tgataggatt	taatccctca	tcggccatac	cgccatcggt	300
cctcgtatgc	cggagattga	tttgatcaac	gtcatgatat	tggttgatgtt	agatgaatag	360
attcctaaga	ttagaggctc	ggaggggtca	gtccgaaata	cgtattccac	ttccttgtaa	420
tatccggtca	ggcctcgcga	aagagcgatt	ccgggccgat	tcggaaagg	acgatcaggc	480

gcacgcgagc	ttattgccaa	gcatgggtcat	ggggaaagcg	actccttcgc	agacgaacaa	540
tccagggttg	aaccgggtcg	acatttgatc	agttcgaagt	gaatatccca	tcgttggtact	600
tatatata	gcggaatag	ctctcctgaa	aaccgcccga	gtgagactgt	tgaagacata	660
gatggagtcc	ctctcacgat	tgaacagaaa	ccttccatcc	tgacgttgat	cttggtcttg	720
ttcagcacgg	gaggcctttc	cccttatcca	gtacctgcat	ataaagatcg		770

(2) INFORMATION FOR SEQ ID NO:814

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 504 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...504

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:814

tatatccatg	caggatatag	ggctctttcc	caaaacaggc	aatactctcg	catcggtcaa	60
gaatatgccg	atgtcgtgca	gcatggcagc	ttcttcgaga	agagacgata	cgccctgaagc	120
tcgggatgga	tttcgacgat	acgaagacca	aggccgccac	atcacggcta	tgctctacta	180
aaatatggta	ttgggtgttc	cctcagtgtg	gtactttattg	atgatgctga	tcggatccat	240
catttgggaa	agagagttag	acgggaagtg	cccggagccg	ggatcgaacc	ggcagaattt	300
gcattcattg	gtgtttgaga	ccaacgcgtc	taccaattcc	gcctccgggc	aattgtcttt	360
tcgaatacgc	gcaaaggtag	aaaaataatt	catccgcaaa	tacttcttga	taaaaggagg	420
tctatgggtc	aaaaagatgg	atagtatcga	agagagaaaag	tctctcttcg	atgctgcccc	480
gattgcttta	tggtttttct	attc				504

(2) INFORMATION FOR SEQ ID NO:815

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 661 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...661

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:815

gttcgttcgc	aaaccacagt	gacaggagta	caacccaagc	tatctctcgc	tttgaccaaa	60
tgagcaattc	gcccaagcga	tttaccatcg	tgggcttggg	ggacgggtta	ttcttaaacc	120
tcaaacagag	cgttattcgc	atctcccga	ttggaggatg	tgtcaatgca	ccttgacagag	180
attgccaaga	tagaaaagtt	cctcatggac	tgatgcgatt	tagcgatggc	gaactatgct	240

atatacctcgt	cgcataagacc	gaacaggggca	aggggaaaaag	ctcccaatgg	aagaatgtgc	300
cagctctcag	agcgtctgac	cgaatataaa	tacaaaggct	caccgagcag	gtagccaagc	360
tgatctccaa	gtatagctct	gtgccaaaac	ttatcttgtc	aagtactggg	agcaggtact	420
cttttcgtgg	ctgataggta	agccgatatg	cacctcaaga	attactcgct	ctatgctcca	480
gagggaaatg	atatcaactc	actccagctt	acgacctgct	gtctacggca	cttgtattct	540
gaggatacag	aagaacttgc	attgaccttc	tgtggcaaaa	agcgcaaatc	actcgccaac	600
acttcctcga	agcgatgaca	gcctcaggac	tagatgaaa	tgtgtgacaa	tatttcgctc	660
g						661

(2) INFORMATION FOR SEQ ID NO:816

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1004 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1004

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:816

ggctgtatct	ctgtcagact	gttccgatgg	attcgccaca	gctgagggac	agccagatgc	60
aaggccgtat	ctatggtacg	aaggagccga	tcggtgtcca	tggtctgcct	atgaagtcga	120
aagctccaa	cctcattccc	tccactgcag	tggaaatcgaa	gccaagccg	tcatacgtat	180
gacagggcag	gaagtgatat	ctgcattctc	tccagtagtt	ccaatccttc	cctgcccggag	240
gtcgaaggga	gaaattcata	tccatcagaa	tcacagccgg	cttacagccg	ccataggatt	300
ccgcattatg	gacaaagctt	cgctcgggact	ggttggtata	acggattata	gcccgcctcg	360
ttgagcacca	gacgcagtgc	ggcacagact	gcacatcatc	gtctacgacc	aaaatatcga	420
tcagtttttc	cattgcacgg	taaagtacaa	attggcgttg	aagcacggtc	ttttctgtcg	480
aatgtctcaa	cgagactgtt	gcaggggatt	ttcattgaac	tctttttccg	cagagctgat	540
ctttgtgcct	tcgtgaaaag	ttaaacctcc	aggacatgag	caccgagcaa	tagatatttc	600
ccccagtttc	tttcataggt	gtatacttga	ggtttgctag	atccgcata	agcattcctt	660
tcttcgtcaa	atcaatgctt	gtgtcgtagg	cgagaaatcc	ccggatttgg	gagatgagct	720
tttcgaattt	tgggtggggg	aagtcaagtc	caataggaaa	agcagacgaa	gagaagccaa	780
actctcctgt	cttgatcaat	atgatggggg	ggaagggtta	ttctgcaacg	gcccagcttt	840
tgaaagttga	agcttttgac	ttattcccag	tatcaaaatg	aaaggggctg	tgtcaaaatc	900
gaatttcgac	acaacccgca	ttgttatttg	tggactttgt	gacccgggcg	ggattcaaac	960
ccgcgacctt	cagaaccgga	tctgacgctc	tattcagcta	agct		1004

(2) INFORMATION FOR SEQ ID NO:817

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 547 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...547

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:817

```
gcgaatagcg aggcaacttt gaatgaatgg tgcgactatg cacacccggc ggcacgtgga      60
gggtagaagg tcgttttttg aaaatgactt acaacataca acctacaatg cagtctgcac      120
ccggattaca ttcgaaaatc aagaaatgaa ggaacgatcg tcttgatacc caagcccaaa      180
gtctcgctgc ctcattggtcg gaatcgggtgc cttgcatccg aaccgaagcc gggaggggaat      240
ttatctttgc gaagaagacg acacctttgt gtctcacgat ggtaacgaag taacataggc      300
ggtaaacctt tcttgctcaa taccaacgta aagattgtgg gggcgatatc caaaagtatg      360
ccgtgggggt aggagaaatt cgattcctgc agtttgtgcc caaacagtat cacaacaaaa      420
atgaacacaa gatgaacaaa aaataacttg catcacagctg tcacaatgga caaagtgttt      480
tctttcattc tcctgattgc aggatgtaca ggagcattat cggggcagtc ttccatcaca      540
tcgagag
```

(2) INFORMATION FOR SEQ ID NO:818

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 885 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...885

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:818

```
ggaaactcacc atcgacgaga ttgtggaggt gaacgggtgag aagtggatat tgcgaaaagg      60
cacaagacac aggtgccgta ccaagtgaag ctgctcgagt acccttgcaa atcatcgaca      120
gataccgacc gttccaaaag gacaactcat attcggggac atcaactact ggacgggtctg      180
caagaagctc aaaaaatcat cagcgagtgc ggaataacaa aagacatctc cttccattgc      240
gcaagcacgg ctttgcgaca ttggcactca gtaagggcat gccgattgag agcggagccg      300
tgtactcggg cacacgaaca tcgtaaccac gcaactctat gcgagataac caccgagaaa      360
ctcgacacgg acctctccat gtcgggcagc aactcaacgc ctcatTTggc tatatcaaaa      420
tggcatgaca atgaaaggga aggcataaac agcaatgtcc gtcagataat cacgggtggac      480
gaacatggga catcaccgta cccaatgaag aaatatggat gagcgagtat gagattgcca      540
cctgctgggc gtattcggac ataccatccg cacgcaggtc aagaagatta cagggatgga      600
ctgctgcaat cctgcacggc agagaggaac atcagggggc ggaggggtcg tggcttgatg      660
tgtacagcct tgaaatgggt atagccttgc gttccgcata aggtcgcaaa gggcaaaaaa      720
gcttcgaaag catgtatcgc aatgctgacc gaacgacacg gaggtcttat catgttcctc      780
ccagagaagc aggttgttcc tgctaaaaca gcctgacagg gtttatagag gttgtcccca      840
ttgacacaag gggataaacc ttttttcttt tttggtggct ggaga
```

(2) INFORMATION FOR SEQ ID NO:819

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 962 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...962

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:819

```

ggattgatgg agtggatggc aatgctgttc cactgcccac tgtattggtg accatctgaa      60
agaccggaat gttttggggc atgggtgctct gttcttttag caaatggaat agttgctacg      120
ggaaaatctc ctcaagaaat tgctgaagtg tggtgtgcgg cgaagtagat cttacctctt      180
accccttctg ttctgcaatg tcattgcaga tacattggca ccgctcataa caggagggat      240
gcaaaaatag ctgccaacag aaagagaaga gaggactaca tcgagactct cggaaagggc      300
ctagacctta tctctacgtt attggttgcta ccggcaatat atagaagacg ttgttcaagc      360
acaagcagct gctcgccaag gagccgatat tatgccgtaa tacgtactac gggacagagt      420
ttgctcgact atgttcctta cgagctacga cagaaggatt cgggggtact ttgctacac      480
aagaaaactt cgtatcatgc gaaaagcctt ggatgaggtt ggagaagagg ttggtcgatt      540
atcaggctct gcaactattg ttcaggctct tgcatgccgg aaatagccta atgggagcac      600
tcgaaggctt ggatgtaatg ctcaatgatg ctctctagga attcttttcc gagacattaa      660
tatgcaacgt actttgggtg atcaatcatg agtcgtgtta tcaatggatt tgccggcggt      720
atcatcaata ccggtaggat aactacctaa ccactgctga tgccgtagaa gaagcacata      780
ccgtcttgcc tcggatttga tcaatgagca gctggctctt acagccggat tgcttcagaa      840
cagatggggc ttggacatgc atttgaaatg gatcccatgc tcagaatgga ttctttttcg      900
aattggctca agcacaaatg accagagaaa tttcccaaag ctccgcttaa gtatatgcct      962
cc

```

(2) INFORMATION FOR SEQ ID NO:820

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 622 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...622

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:820

```

gaactcacgt taaagtagat tatagaaaga accagtaaac caattgtaga ctatcccggc      60
ccaactgtca acttttttca gtacacgtca aacttttctg tttggcgagg gagcgaaaaa      120
attctcacgc cactgcgaaa aaattctgcg ccgcttttct ggaaaacacg cgccacaatc      180
ggagcggttc tggttctatt tccgaggctg tcagttgtag actttccgac aatggtgtag      240
ctctactcct ccatactaca ggctcgccca acagacaagc acgacatccc cacaattgcc      300
ctcgcatcag actgatgaga tcgtgactgt tgatgcagga acgataaaaa ggaatttttt      360
tcggattcat ttggcgcata acaaaaaaag caacctttgc agcgtcaaaa tcagaaggag      420
ctttcctttt gatgggtatt gctccgtagc tcagttggta gagcaaatga ctcttaatca      480
ttgggtcggt gttcgagcct caccgggggc acaaaccaat agcagagggc tgtgttgaat      540
agtttttttg acacggccct ttaacttttg gatcgggggt cgcctttttg aaaggatatg      600
ggaaatatct gtcaaatgcc ga

```

(2) INFORMATION FOR SEQ ID NO:821

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 930 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...930

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:821

cagtcctttc	ctgggtcgggt	tcggtttcgc	tgaacgaaga	ccgatacttg	agtttgtttt	60
ctttcatttt	tctgtcgttt	ttttctaaat	ttcctttggt	gcaaagggtac	atacgaacaa	120
gtattcntga	gcgatgcaga	aaaatgaaga	tgaggaataa	aaacctatga	cacagttggt	180
tacattcaat	tcgtaaccct	ttttgctttt	tccctgatgg	gttacgattt	ggtaacggaa	240
ctcctccggt	tgatgctcgt	tcttgcttac	cctcaaaaata	gtaagaaaat	gctaatagata	300
ttatttcaaa	tagttacatt	ccctgcattt	ccctctggtt	ccctaattct	taatgactga	360
ttatgcccac	aagatgagct	tagatttacg	cagattgatt	tggagaggta	ctcggatcat	420
atagacaaca	aggcaagcca	cgtgccaaaga	tgctcaatga	ctattaccag	aagttcgtatg	480
cacagaaggg	acgcagttcg	ttttctctga	tttagggact	tataagcccc	gaggagaatc	540
aatgtctatt	cggagatcaa	acgtaagttg	gtagaagact	atcacatcca	tcgcatgaag	600
tacgctttat	ccaagagtgc	aagaacgaga	aagccaaaaa	gcaatggtgg	acgccatgaa	660
ccgtggcgac	atccgcatca	tcttcgttct	acttcgatgt	tgggaaccgg	ggtgtcaatg	720
cccagcaacg	tgccctggct	atccaccacc	ttgatacacc	tttggcgctc	ttcggatttg	780
gagcacgcaa	cgggcgttgc	cgtgccgtaa	gggcaatatg	attgccaaag	agttgcggat	840
aacaagtncg	atgtgattat	ctatgccgta	gaacgctctc	tgatagtata	agttcaattt	900
gcttcacaca	agcaagttgt	tcatcaatca				930

(2) INFORMATION FOR SEQ ID NO:822

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 611 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...611

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:822

agttgtaaat	cccccttgag	gagctgcttg	cacgagctcc	tcaagggtgt	tataccttat	60
cctagagatg	aggacataat	tatccccggg	gttctgtaaa	attaaaggcg	atgctttcaa	120
gaatgttttg	agtatgggtc	ttggcaatcc	ccggtatcga	catcgctccg	catgaaacca	180

ccggcggaata	ctgccaaggt	gcgttcgatg	gtgctccgta	tctccacaag	gcttgcatcg	240
acaagaccct	ttccctgacc	gaaatgtgat	ggcgggaaag	ttgtttggtta	aactcgccaa	300
tagtttgctc	atgagcccca	actctgtcag	tgccgaacga	aatgactgat	ggtgctgtgg	360
tcgggagata	cctcttccat	agccccaaga	atgggaaaag	gtgattgaat	cattgatgcg	420
ctcctccaaa	gcacaatcac	taggttgtag	catgtcttcg	gaagcaacat	cttgaataag	480
agaatcacgt	ataagccggg	gcgccgatgg	cattttgtcg	cttcgtgtat	ttcttgttgt	540
cagcgtcctg	atcggacgcc	aatcgataag	cctgtcaacc	tgattgagaa	gtcgttttgt	600
gctttgcgat	a					611

(2) INFORMATION FOR SEQ ID NO:823

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 266 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...266

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:823

gatcggacgc	caatcgataa	gcgtgtcaac	ctgattgagg	aagtcgtttg	tgctttgcga	60
taacgctttg	aaaggagtgc	gtctgcaa	atgtacatg	atcggtattc	ttggattggg	120
atgccatggg	aggaatatta	tgctgtttta	atactcaa	atacaaaata	actccctact	180
atacaatcaa	ttaacagcaa	aatacacacc	aattgccgtg	caaaggcttc	tataaatact	240
tgaattgcta	caacccaaag	agctat				266

(2) INFORMATION FOR SEQ ID NO:824

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 593 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...593

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:824

gcaggaagca	agaatcagcc	gacaatcgcg	tcctgcatcg	tcaggaaga	agaatcagct	60
gacaatcgcg	tcctgcatcg	tcaggaagc	aagaatcatt	gacaatcgcg	tcctgcatcg	120
tcaggaagc	aagaatcagt	tgacaatg	tcctgcatcg	tcaggaagc	aagaatcagc	180
cgacaatcat	ttctgttct	cacctatcg	cacaagcatt	gatttgacga	aaaaaggagt	240
gtctctgtga	gtctctgcga	acctcaagta	tccacctctg	aaagaaactt	ggggaatttc	300

tgtttgctcg	atgtccatat	accggaggtt	tgatctttcc	caaggcacta	agaatcagct	360
ctgcagcaaa	agagttcaat	aaaaatccc	tgaacaagtc	tcattaagtg	ttttcgattt	420
atatatgatt	gaaaatggtt	ttatataaat	cgcaggtcga	aaaaggccaa	tatatgagct	480
gagtgtagat	ttcattgtca	tttaatcatt	tgtcaaagag	ctttacaaag	ggaccgaagc	540
tctatccatg	tatataaatg	ctcgctgaaa	gcaagttcta	tcggcattca	atg	593

(2) INFORMATION FOR SEQ ID NO:825

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 467 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...467

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:825

ccggtgagta	ccgtttcgct	ggtggcatgt	accatggctt	ctaccatatg	ccgtctttga	60
ggaactggac	gccgtcgatg	cttgcacccg	gtatgggtgc	tgctcgaacg	tttcgggggtg	120
catgaagttg	tatcccatct	cgtcctgtag	agggtactgat	agggacgtcg	ttctattctg	180
acctcttcga	ccttgagccg	ctgttccagg	tcttatcgag	gatacgtcct	gtagccacgt	240
tcttggtttg	gtgcggacga	aagccggggc	tttgccgggc	ttgacgtgaa	ggaatcgacg	300
atgaagtagt	attgtccctc	aatttcgaga	cacatgccgt	tgcaaagtct	gccgttgtag	360
ccatttgggt	ataatcgctt	ttttaatgat	gagaaagggg	tagggggcgg	ttctcgaaat	420
actgccgatc	cttcgggata	tggcaaagcc	tcctgttgcg	gaggcaa		467

(2) INFORMATION FOR SEQ ID NO:826

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2419 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2419

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:826

ggcgtatcgt	ggagcaagga	cgccacgatg	aactgtatgc	cctgggaggt	actacacgaa	60
gctatgcgat	atgaacgcag	aatgagaaaa	tgatactttg	tgaagaaaag	aaaaccgatg	120
gactacaaga	ctcgcatcat	atatgcctgt	tgaaaagcag	gctgaaaacc	atcgacacct	180
atgcctctcg	agctgagaaa	tacaagaccg	ccagctcagg	cgcatcctgt	cgagtgcagc	240
ctacaatcca	ccggtatccg	ctacgggttc	aatcgcataa	gctcgaaaaga	gtgtttgctc	300

gcaacgtacc	tggttcgcat	tacgaatcga	cacaagccga	aatgaacgaa	tgcttcgtgg	360
cgaaaaagac	gtgctctgtc	cggggcggtg	taatggtttg	ccaaaagcag	cggcaccacc	420
aatagcaaaa	gcaagttcat	cccgttccat	accgccacct	gcactattgc	cattatcaag	480
gggggaaaga	tccctatcgt	tatacctacg	caatagacct	gacagtcgtt	tcttcacgat	540
aaaggggttg	tactgggttg	cagtcacgcc	cctgtatcca	tgaatgccat	atacaagtcg	600
gcgacttgag	tgccatcctt	gtcgagaata	tgccctgtctc	ggcaactgca	tgcgcgtaacc	660
ctcgaaaaga	acgctcttga	tggacgggtg	acggagaagc	tcaaagccgt	agttcgcgaa	720
gtggcgcatg	tacgatcgga	agcttgtccg	gcgtaccgtc	ttggatcctt	gtcttgatca	780
aggagtactc	gcagctacag	gccgagagac	tttgtcggat	gtatggccgg	aatggaagta	840
tttttccacg	gcgggtatcag	ctttgtctccc	tatcgagcgc	agatgagaag	ctgatacctt	900
cttcacggat	gcagtatatg	gagacgtata	agcttcggaa	ggtttcttcg	gtattcagga	960
tgatccgaag	gatagcggta	gctgctgatg	ctcgattacg	gagtttacta	cgaattcatc	1020
ccgatggaaa	tttcggccgc	cccgaagcgg	aagccatccc	actcgaagga	gtggaaaagg	1080
gcgcaattat	gccatgatta	tcagtacgct	cggaggactc	taccgtttgt	actggcgcat	1140
accgtacgat	tcacatcggg	gaaaccatac	aagatatcat	caccggtcgc	accaagcact	1200
atatcaacgc	attcggagaa	gagctatggt	agacaatagc	gacaaggctt	tggcgcgac	1260
atgcaagcga	tttgcgtgca	ggcagtgga	tatacggtag	cgccccactt	tttttcggaa	1320
gaggcaagg	acggcacgac	tggctgatcg	aatttgtctc	tgacccgggt	gaccgaatgc	1380
gtttgccaaa	gcattggatg	ccgagttgca	aacgctcaat	tcgactacga	agccaagcgg	1440
tatgcagaca	tgactctgct	cccactctcc	tgacgatcgc	tcgctccggg	ctcttccacg	1500
attggcttac	ggagcagggg	agctggggag	acagcacaaa	gtgcctcgtc	tgagcaatac	1560
accggaaaaa	tgaggtctat	cctcgaaatg	aacagttaat	cgcatcttcc	cgattatggc	1620
agggggagat	gtttccgaac	aaaagaatca	atgagtaaaa	agaaagtaaa	agcaagacta	1680
aagcccgcaa	gggagacgct	cctcgcatca	accgtccggc	cgtaggaaca	agcgcatgac	1740
caaggaggag	atgcgcgaatg	ccatttggac	atattccaaa	gcaatcctca	gagcgtgatg	1800
aactacaagc	aggaagccat	ctgatgggag	tagaagctgc	accacaaaag	ctaattggtga	1860
acccctgatg	gaagacatgg	ctgtggatga	catcctgcat	gagatagagc	gggacgctat	1920
cgggtacaatg	ccttgggatt	gattgtcata	ggcacttttg	gcgtcgggtc	aatggccgca	1980
attcgtttat	tcccgaaggg	ggcggaacgc	cattttcatt	gccgaaagaa	attcggcaca	2040
tgccatggac	ggtgacaagt	gaaagtacaa	ctctttgcca	aacgctcggtg	tcgcgcgccg	2100
gaagccgcgt	gatcgagatc	atagaacaga	agcaggccac	tttcgctcggc	aagatcaa	2160
caatagagac	tttgccttcc	ttgttacgga	agatcgacc	ttagcaatga	tattttcatc	2220
cccaaggaca	acctcggcaa	cgccaaaaac	ggcgtaaggt	aatagtccga	atactcgaat	2280
ggccggagca	atccaagaat	ccctcggaga	ggtacaagcc	gtattgggac	cggccggaga	2340
caacgatgcc	gaatgaatgc	cattttggcc	gaattcggat	tgcccttatgt	ctatccccaa	2400
gggtggaaga	ggcagccga					2419

(2) INFORMATION FOR SEQ ID NO:827

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4442 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4442

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:827

aggctcgtc	ccctactcgt	caagcagcaa	ctgggtgggtt	gcatacaaccg	aaaacatttg	60
caatgctgac	atccgcaatc	gcataaagaa	aggggtatgac	aagagatcgg	cacggggcatg	120
acaaaaatat	agagcagata	gccggaccgg	cccggagatc	ctcctgcagg	atttattcca	180
cgtatcggac	aaggacaaga	gttgatcgtc	tcgggcatca	acaccgtttt	atacaacgaa	240
tggaagagcg	ggatctactc	ggtcgtgcgg	aatggatgaa	gctaaccggcg	atgctctcag	300
ctgcaatcgt	cgtgctcatg	aggttttcga	acagatagaa	tcgagtatgc	ggaggctcgc	360
aaattggtgg	cagaaaagac	cgataccatt	gcatacatgta	tgggcaggac	tataatggga	420

cttggtagct	gcccggagag	tcagctacag	tacagccatg	ttcagagatg	cacgagtatc	480
tttcgactat	cagccggcaa	agtcaagtagc	cagccgtgta	gtttcgagta	tattttcagc	540
gccatcgtea	tgccgaaatt	tggatatgta	cgatgatggg	aaacatcaga	caatggatga	600
attttctcgt	ttgaacgaac	gctaccgaca	tttcgatcca	cccaaaccgg	taagggtttac	660
atcgatcgca	agcgcgtgaa	cgagaagggg	gcaatgacta	ctgggagagc	gggctgtatc	720
gtcccgatct	tttgccaaag	acatcatcaa	gatcaccggg	ccggagctgc	taccgagta	780
cgagcttcat	actggataga	actgaagagg	ccatgaagcg	atcatcattc	atatcggcac	840
actttcttta	ctgactgcca	tggctttcgt	gaccgacctc	attggggcag	tctggatata	900
tcgcccggcg	acgtgctgca	agctctgacc	acggatcgga	aatgcaaaca	accaatgact	960
atgtcattcg	caattttccgt	tgccgaaggc	tctgaccgct	ctcttttgccg	gtgccggcat	1020
atccatcgcg	gtctgcaaat	gcagagtctc	ttccgcaatc	ctctggctga	cacctctatt	1080
tggggatcaa	tagcggagcc	ggtcttggag	tagccctgta	catcatgcat	tcaccatcat	1140
acccgggtctc	agtctgcact	ccggcacggg	cgacactggg	gcgtagctac	ggcagcctgc	1200
ataggttcca	tgctggtagt	tctgccatct	cggtctgtagc	agcgtggctc	agagatatgg	1260
tctcggtgct	gatcttggag	tgatggctcg	ctttttggcc	agttcgttta	tatccattct	1320
ccattctttt	ccgacaatga	aatgctcaaa	gggtatctga	tctggtcttt	cgagcgtgg	1380
ccggcacgac	atggcgacag	ctatccctga	tgatccccat	ttttcggggcg	gtctcttctt	1440
gtccatcgctg	atgcccgaag	atatgaatgc	ctcaacatag	gagagaacta	tgctcgtagc	1500
gtaggtatcc	acgtggagca	gagcgaatta	ttctgatcg	catcacgagt	atcattaccg	1560
gaacgattcg	gctttttacag	gccctattgc	ctttttgggg	atagccgtac	ctcactttcg	1620
cgcatcctat	tcaaaagttc	ggactaccgc	atactgctcc	ccggcacatg	ctgtgcgggtg	1680
ctctgctgat	gctcgtgtgc	gacatgatca	cgcatgaccg	ggcaaaggct	ttgtattgcc	1740
gatcaaacgc	atcacctcga	tgatgggtgt	cccgtagtaa	tcatgacgat	cgctcgcaac	1800
cgcaaaaagc	gttaattcttc	aactgaacag	cgatgatgcc	ataccgacaa	tgtgacctg	1860
acggactatc	taccggatac	cgaagcaaga	aaacggagcg	catcgatatc	agctaactga	1920
cctttccatg	cttaatggcg	aactggtaat	gctgatgggt	cgaacggctg	cggcāaatcc	1980
acgctcatgc	acaccatcgc	aggattactc	cacctatttc	ggggaatatc	accatcgag	2040
gacgcgacac	acacgggtccc	gcatgagaga	gaaagccaaag	atgctcagtc	tggtagtgac	2100
cgacaaatag	cagcgacgaa	tctgactggt	cggtatattg	tcgtcatcgg	acgtaccct	2160
acgtcaatta	tcggggtagc	ctgaccgcaa	aggacaatg	gattggaatg	aatcgctcat	2220
agcatgccga	ctgatgggat	tccaatcgcg	ccaaacgggg	aattaagcga	tggagaaaaa	2280
cagcgtgtaa	tgatagcccg	cgcttagccc	aacagactcc	cgtgatgctt	cttgacgaac	2340
ctacggcaca	cccgaacctgc	caagccgtct	ggaggtgatc	atcatgctgc	gcgaattggc	2400
agcaaaacga	acaagagtat	cctcgtttct	acccacgaaa	tggatctggc	ctgcaatggg	2460
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agcggagcct	tctccgtaaa	cataaaacgg	ctacacctgt	ttctgtagaa	ggacagggtg	2640
ctgcctcaaa	tggacactga	gtgctttgca	ccggaatggc	tatgtggaat	ctgcaatgcc	2700
tccgaccgca	aaatcacctg	gggagagggc	tgctggattc	tgacaggggc	gattcctcga	2760
aaagcttcga	ctccatcggc	tcttctgtac	aaagctgcac	gctcaccacg	aatgaatgct	2820
tgtgaaacaa	acaattatat	gcaaacccta	cgatagattt	cgacaaagaa	acgcctctgt	2880
tttttagtcc	ttgggcgatc	ctctttacca	cttgaaagaa	agtatgatcg	ttcgcttcgc	2940
ggacgcagag	gagtcgtgag	cacctgcaat	ctcaacggcg	gctaccgaga	gacctccgct	3000
acgccttcaa	caacagttgc	gggagggacc	ccgacgtata	gccaacgct	ctgtagggat	3060
gcgaggaaag	accatgatcg	aacactagcc	gccttagcgg	agaattggg	tctgcctctt	3120
gacaaaacaa	cgggcagggt	acgcgtgctc	tgatcgaaaa	tacggcgacc	tcctctcgcc	3180
ataacacgga	gtaacgggtca	tggcgggttc	cacggcagg	atagatgtaa	atggggacgc	3240
gcaggagaa	ctgcccgcata	caacgaattt	acccaacag	accgattaag	ccgggtacca	3300
tcaacgtatt	cctgttcatac	gacgcctcat	tgatgcagga	acactgacac	gcgcctcgt	3360
caccgccacc	gaagcgaaat	cgagccctg	caggaactga	tggcaaacag	catgtattca	3420
gaagatttgg	caccggttcg	ggaactgatt	ctctgatngc	catctgtaat	aaggagtcca	3480
gatagtgcct	cagaatagtg	gcaaacacgt	gcttttgggc	gaaatgatgg	ccaaagcgtg	3540
aaagaggcta	ttacggaagc	cttatccgga	cagacaagat	gacctctaca	cgtcaggctt	3600
cgatcgaaatg	cgagacccaa	cgctacgata	acgagagaag	cgatcgtctc	cgaatgcctg	3660
cgctgtatc	cacattgaaa	aaagaggttg	tagaagcagg	aatcgggcgt	atcgatcgag	3720
acaacgtctg	gtagccgcag	tggctgccat	tgctcattta	tgcgacccaa	atcctggcaa	3780
atcatctcgg	acaagagcat	gacctgcaca	gccgaaaaca	tatgcatacg	atactttcgg	3840
agagaggtat	ctccgaggag	gcaaacagaa	agacattgta	tgcggacaa	atgcgcggc	3900
atatcgtaaa	gtgctgtccc	ctgcctccat	actcttgcaa	gaatactcca	caacagaatt	3960
attcattcac	actttaacat	atcaataatt	atgaaaaagt	ttttcttcgc	gctactatga	4020
ttggtatttc	agcgcaggct	tttgccaaga	cggacaacgt	cccgacaatt	cgctacgagt	4080
acacaatctt	cagaccgtca	cggtctatct	tacacgacgg	ccgtacctct	gaaaaagata	4140
ccggccaaga	tggaaactcat	ctcatgcgca	acatcaagca	gtccggcttt	aacaacatga	4200
ccgacatcct	caagcgcaaa	gttcgctcga	tgtcatacaa	taccgggct	ttagttcgaa	4260
catggtatcc	gcggtttcaa	gccctccggc	aagtatgtaa	ccgtattggg	aacggcatcc	4320
ctgcgggaac	ggacaatatc	tctacgctca	acacgagcaa	ctcgaacaaa	tcgagatcct	4380
caaaggcccg	ttctcttcca	tctacggcac	aatgccatgg	gcggtgtggg	gaacattcat	4440
ca						4442

(2) INFORMATION FOR SEQ ID NO:828

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 574 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...574

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:828

cgtaacggct	catgacttat	ccacacgacc	ggccgtatcg	acaagtttgc	cttgccctgta	60
agaacggaat	gcgacgtatt	ggagatttcc	actttgataa	agggttaagta	acgccgtcga	120
tctcgatcgt	ctccttttgc	tccatcgaga	gcgtgtgata	aagatgtctt	cgttggacat	180
atccttaaac	accaccgacg	ataattttcg	ggatgaatac	cttttttcat	tgctgtctat	240
ttagtttgtt	cttgttttcg	ttcgctattg	acgtactctg	gattggtaac	cgttgtttat	300
aatcggatag	agattttccg	acggcaaagg	tagggatatt	atttacttgg	caagcagtta	360
ggccgagtc	aaaatgagtt	cgatcattca	tgcggacatt	catgctctta	agataagcag	420
gaggggacgc	atgctcgtgt	agtcgatgaa	tcgtgtgtcg	gatttacgaa	ccgcaatcgt	480
tgtaattgtg	cgcgagaatt	ttgaaaaagt	ggaacgtaaa	ttatttcgtt	ttggttcgaa	540
ttttttttgt	tcccgaacca	aaataaaaaa	attc			574

(2) INFORMATION FOR SEQ ID NO:829

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 796 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...796

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:829

ggcagatgat	gatacacggc	aagcgcaaac	aggctgcggt	ggagaccatg	aggagaccgg	60
ttggccggtg	ctattcagtg	ctctcaccac	ttttgttgtt	tgctttcttt	tctggctatt	120
cccgtcgtac	cgatgcactt	tatcggttcg	ccacttctgc	cagtgtcctc	ttctccttta	180
tgatcgccat	tacggtatgc	cgactacctt	gagtttcggc	aaagaccatc	agccgaaagc	240
atcaggcgaa	aagaaggaaa	gcacgcggtg	gatcgatggc	tcgaagcctt	cggtcctggg	300
tgttggatca	tgagaagtct	gtctgggggtg	cttttatcct	tatacagtgg	tgatgctctt	360
tggattcctg	aaaatggaga	cggcattcga	catgaaagaa	caatggggcg	acggatagaa	420
tacgtcagca	atatccttgc	ctgagcgaaa	gcgaattggg	ctctctttat	tcctatgata	480

ttatgatcga	ttgggagagg	agggaaaggc	caagaccccc	gaagcacttc	gtgctctcgc	540
agcatcgctc	gccatgcaga	ggcatattcc	cttaccaagc	gtaccactcg	atattgaata	600
tcttcaagga	tctgaaccag	accttgacag	atggggacag	gcatactata	gcattcccgg	660
cgatgcggag	gaaagtggca	ccagcactcc	tcctatatga	gaatgcnggg	ggggagtga	720
gcccgaagc	tggatgactt	acgaatacca	gaccggttgc	taccctgaaa	gttgggaaaa	780
tgacctcttt	accaat					796

(2) INFORMATION FOR SEQ ID NO:830

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 874 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...874

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:830

actgtcgtca	agcgatttga	ggaataccgg	catgagcatc	aggatttgtg	ccaatgcggt	60
ggcaaaactgt	gcaaaacgaa	ccacctcggt	accaccgaga	gcgtctcgct	caaataagtc	120
atctcacggt	tggccttggc	tccttcctat	aagccttttc	gagagaagac	aatacatcgc	180
catagacagc	actcttcctg	tccttacggat	ccagtctgcg	aatgctcttt	cctcggcacg	240
cttacacctta	tcacgtcaag	acgagcgaga	ccgcggttca	taccgatcga	attctccaat	300
agttagcact	ctgagcatac	ttgctggcat	atttgatacg	ggtgcctgat	ctgcgctcat	360
ggcttccttc	cagatgcctt	gcttgatacc	gcaacttcga	tacgaggatt	gttctcgttt	420
tcgatacgat	cttccacacc	caagaagtga	ggtagcgatc	cgtactgccc	gggaaaccga	480
tggatcatggc	tagtcgtcag	ccttgtagcc	ttgcatggat	acggcagcga	agtaaaccggc	540
ttataggggt	tattgtcctt	gctgtattcg	gccggccggt	tgctcggcacg	gcatacacgc	600
ggaatacgct	gaagtcgccc	gtgtgacgcg	gccacatcag	ttgtccgtat	cgcctccgaa	660
cttacctaca	gagctgggag	gagcaatacc	atacgaacgt	ccttgaatac	atcgtagacg	720
atgaggaagt	attcgtgttg	gaatagaaag	gctctacgat	gcagagtttg	ttctcgtctg	780
catttctttt	ttggccagtt	cttggcatac	ctcctgagct	ttgcgcagac	gctcatctcg	840
tcagtgatac	ccttgagctg	tccttctacc	ttgt			874

(2) INFORMATION FOR SEQ ID NO:831

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 393 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...393

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:831

gccgccgatg	cattaagagc	agaagccaag	gcttccgtac	tgattacaca	tcagcgattt	60
tgagatccgg	aagattttatt	ttcttccctt	ttactttgct	tcgaagggtta	agaagagttc	120
actcttgtcc	atggccggct	tataaggaaa	gagaatacga	gctgctgatt	gccaccattg	180
tcatagctga	ctacacctca	ttgccaagta	ctttttctcc	ctgaaaaagg	aatgaagggtc	240
cccatattca	cctgtagcat	agcgcgacac	aggcttcact	gtaagttcgg	ctttttattg	300
aaccatttgg	caggaaaagc	gatactcacg	gtcacaggca	cttgcttccc	acgacttcag	360
tggttggtggc	tcagccctta	ccaaatcggc	agc			393

(2) INFORMATION FOR SEQ ID NO:832

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1343 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1343

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:832

ggttatgagt	ctgcgtcatt	tctgtgggac	tggttggtctg	attcgttctc	atccccact	60
caagaaaccg	atagccatca	agaggaagaa	aaagattttac	tttctcattt	tctactcggt	120
attagtgaag	agaatcgaat	ttctcggtgt	aaattatcgg	gaacttaagg	tgaatggaaaa	180
tcctatacct	tttgttttcc	tataaaacag	cacttctatc	gacaacgata	tgaaagnang	240
atcaacaact	cctacaggaa	atcggtcagt	gtgtggctgc	caccgtggag	gaagcgaagc	300
tctgcgaatc	aagtatctaa	gcaaaaaggg	cgaaatagcc	cgttgttcga	tgacttccgg	360
ctggtaccgt	ccgaagagaa	aaagcaaatc	ggcaaatgct	caatgagctg	aaaaacaagg	420
ctcaggagca	tatcaactcc	ctcgcgagcg	ggcacaggca	ggctctgcac	aagcttcggc	480
agaaaccgac	tgacacgaac	atcatacccg	acgagactcg	gaacacgcca	tccgatctcc	540
tggtgaagca	ggagatctgc	gagatctttg	ccgcctcgg	cttcagtacg	ccgacgggcc	600
ggagatagag	gacgactggc	atgtattctc	ttcgatgatt	tcgccgaaga	ccatcctgct	660
cgtgatatgc	aggacacatt	cttcattgag	atcgccccga	tgatcatcct	cgacgcata	720
cgtccagtgt	ccaaaccggg	tgatggaaaa	gacacaaccg	ccgattcgcg	tcatttgccc	780
cggggtacct	accgaaacga	agctatctcc	tatcgggcgc	attgtttctt	tcacagggtg	840
aagcactgta	tgtggacaag	gatgtttctt	tcgccgattt	gcgcagggtc	ttctttactt	900
cgacaggaa	atgttcggag	ccgaaaccaa	atacgcttc	gcccttctta	tttccccctt	960
accgaaccgt	ctgccgagat	gacatctcct	gcaatatatg	tgggggtaaa	ggttgcaact	1020
tctgcaagct	acgggatggg	tggaaatact	cggatgcggc	atgggtggatc	ccaacgtatg	1080
gacaactgcg	gcatagacag	caagaaatac	agcggctatg	cgctcggatg	ggtatcgaac	1140
gtatcaccaa	tcttaagtac	cgagtcaaa	accttctctt	ttctcggaga	acgacctcaa	1200
cttcttgga	cagttcaaga	gcgtgactaa	ccctctgata	agtatcgaat	gcgcaaggaa	1260
gagcgatata	aagcgttatc	gattgggttg	ccgagaatat	gccgggtggc	gaaacgggagc	1320
tgcgataccg	gaccccttcc	agt				1343

(2) INFORMATION FOR SEQ ID NO:833

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 647 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...647
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:833

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atctctttcg gtacggctca cacggctctg ggtaatgtcc ggaagctccg tacgtcttgg      60
ctaaggatac ccattacgga cctttcggcc caagggtacc ttaacggca tttgccagtg      120
catctacgcc cttcttcaga aggtcgcaga ttccatatcg aatttgattt cttttgccat      180
agtctttatt atttatattt attttttttc ttttttgagg gattattgtc tcttccttta      240
ccactgggtt tctgtttttt gaaggccaac ctgcagtgtt aacttgttct ttgattcttt      300
tgccatagtc tttattattt atttttttct tttttggagg attttgtctc ttcctttacc      360
actgggggtt cctgtttttg aaggccaacc tgagtgttaa cttgttctga tttttttggt      420
ttgcccatta gatgattgcc agacatcgtt ttggcgcagt atgatatatt ttccaccctc      480
cagctctatt cagtgcgggc atatttgccg tagagtacgg tgtctcctgc tttgagcaca      540
tctcttcgtc tttcgtgccg ttcccgcacg cgattacttc acccttgaag gtttctcttt      600
ggccgaatcc ggaataatga tcccgctcac tgtttttctt ctgctgc                    647

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(2) INFORMATION FOR SEQ ID NO:834

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 289 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...289
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:834

```

tgacaatccc tcattttttc aaaggctctt atatcngttt tactcgtcgc gttcgattgt      60
tttctttccg gccggggaaa gtttccccga cagccgacaa aataattttt ccggccggaa      120
aatctctatc caaagggttc ggatatgac caaagccttt gaatacatat ccgaaagctt      180
cgtttatata tccgaacctt tgaataaaga attggattat ggcttttnca acttttccgt      240
actgcgaaaa aacttttttc ggccgggnac gattatttct tttataaa                    289

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(2) INFORMATION FOR SEQ ID NO:835

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 956 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...956

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:835

acgatcggca	gagagaccag	cccgcgaag	aggatgggca	tcaggatcgc	atcacgagga	60
aggatttctt	tccgacgcga	atcatgtatt	cgcgttggtg	atagtgttaa	tgttgttcat	120
aacgtcagtg	tgtatcgggtg	gtttcttttg	tgcttggtac	ggattctctt	cctctacgcc	180
gtggcctacg	gtcttggtgaa	tatgtcgtgc	atgctcggga	tctcttcgta	gaaggacacg	240
agccgaccga	ctcgggcagg	tcgcgcacga	gatcgcgggt	gtgcgcctg	gttttttgcg	300
cactctcagc	ttcgtcatgg	aacccggtag	ctccgtcttc	tccgtatccg	gatccggccg	360
aggtagtctg	ccggcagctc	gccttcgact	acatgcggat	aatgccgagg	ctgttctccc	420
tacgcacttc	gcgcacggct	cgtggagcac	tacgcgcgat	ttgttgatca	gtgcgaagtc	480
gtcgcatact	cttccaccga	ctgcatgttg	tgctgcgaga	agatgacggg	acgctccttc	540
cggccagctc	cagtatttca	cgcttcagca	ggtcggcatt	gaccggatga	atccgctgaa	600
gggttcgtcg	aatatgagca	attccggttc	gtgaatgcgg	tgacacagaa	ctgcaccttc	660
tgctgcatcc	ctttggacag	ctcttcaact	ttttgttcca	ccaaggcatg	atgtcgaact	720
tctcgaacca	gtcgggagcc	gcttgccgcg	ttcgtgcttg	ttcactccct	taagtgtgcg	780
tagaagatgg	cctgctcgcc	cactttcatc	ttgggggtaca	gcccccgctc	ttcggcaggt	840
agccgatgcg	gcgaatgtct	tccgcctgca	tgggatggcc	gtgaagatca	cttctccttc	900
gtccgggagc	agtaatgcgg	ttgatgatac	gatcagactg	gttttgcccg	gcttcc	956

(2) INFORMATION FOR SEQ ID NO:836

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 605 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...605

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:836

gcacgtcctg	cagtctgcgt	gagcgaacga	tcgcgagcga	ggaatccttc	ttatccgcac	60
ccagaatagc	cacaagcgaa	acttccggga	agtccaatct	tcgcggagca	gattcacccc	120
gatgagtgcg	tcgtagaccc	ccttgcgagg	tcttccatga	tacgcacacg	ctccagcgtg	180
tcacatcgcg	tgtgtagtag	ccggtgctga	taccgtggcg	tagcagggtat	tcgctaagct	240
cctctccata	cgtttggtca	gggtcgttac	cagtacgcgc	tctttctttt	cgatcagcgt	300
gctatctcct	ccatcagatc	gtccacttgg	tttgccgtcg	gctgacgtcg	atgatgggat	360
ccagcagctc	ggtcggacgg	atcagctgct	cgcgatcacg	ccttcgcttc	tgttcagctc	420
ataagtcggc	aggcgtggca	cgatataaag	gggtccgggg	gtgagagctt	cgaactcgtc	480
gaagcgaagc	gccgattgtc	gagagcggca	ggcaggcgga	atccgtattc	gaccagattt	540
cttgccgcaa	cgatcgccct	cgtacatggc	acgtatcttg	cggtatcgac	atggctttcg	600
ctatg						605

(2) INFORMATION FOR SEQ ID NO:837

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1539 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1539

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:837

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ctttggggaa agaaagaggt aggaaaacgg ctatcagggtg atcaggaaaa agccaagcgt      60
ttgcttcttc cttacctctt tatggggacg gtggcattct gcctaaagtc ctactgagtg      120
cctacacata ccacccgatg aggcctcttt ttcggatatg tcagcagctt tctttttccg      180
gcaacgaatg ctattccttt ctgtgggttt tgccctgctt gttcagtccta ttttgcctgg      240
ttgtttttat cctcggaagt ggatggaggg accgaagatt ttcggagctt acctatcgcc      300
tgccttctgc atatatgcac cgaatacac cctgtggcat tcgggatgat cctttctgta      360
ttatagcagc ctttaacaat tttcactact tcttctgggt atgatgttat accgctattc      420
cgatcgata gtttcagac ggtatcggtg gccctgctta tcgctttcca tgtggcactt      480
ttctcccggt ctttatgccc gagcagtcac cgttcttggt ggtattgaac tggctctata      540
taccctgttc atcgttgtcc tttatggcgt gtcggtaaaa atcggagaaa ggtgatgcct      600
gctccattgc ttcacggtat agggttgtac agctatccat attcattttt tcatgggttcg      660
tgctggtcgc attgagaata gtccttatga ccgctatgag ctgagcacca tgatgatcaa      720
tgagactatt gccatagttt catagccggt ttgttcatac cgctttacct gtccaagttt      780
ttggcaggaa acttccggtt tctctcaagc cgctggtcgg attgtaagca gaccagagga      840
gctgcgcaag aagggaaaagt taaggttcga acttacgaag agaaaactat cgataacgaa      900
cggacttaac gacatgattc cggccgaatc aggaagcctc gcaaatagcc atagacacgg      960
ctcacactcg cagagtcctg actgaagttg tcagcatatt tattcccgga ttcacaggtc     1020
ggctgaccga agaacggtat tgtcggtgca aaccaattgg agaaacatct qcatcgttca     1080
tcaggacgaa gttgtagacc tctcagcctc gtgacaaatt ccaatcggtg ccttccttat     1140
aagctgtacc tggggtgatg atgaaagacc tgttcagaat ggcattctccg gccggtagaa     1200
acacgtacta tctccggcca gcatatgatc gaatccagtt cgtagaacga accatcgagc     1260
atatccatcc ctttttctca cgctccaacg taatctgctt gtccagatcg attcgctgct     1320
tttcagttca tcccgaacgc tttggcagat ggcatatac tcttccaaat caggcgacca     1380
taccacatca gcgtgctgtc gtaatccatg cgagtgtgct ctacttgga aacagattgg     1440
gtgtaaaccg cttcacgaac actatccgtc attnccggtc gtatatatta gcaaagtgc      1500
catcggccac ataaagttca ccatcagatc cttcaactt      1539

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(2) INFORMATION FOR SEQ ID NO:838

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 622 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...622

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:838

gggaatgtct	tcttcaatca	tggtcgcaat	cggatcgatt	tcacctacaa	ggcacagatt	60
tgatctacac	caacgtatcg	aaagaaatga	gaatattcgc	tttgaaggac	aagcgaatgt	120
ggtactgcct	tacggctttg	gttttcggct	tcatattcct	acacttatga	tcgatggaag	180
gcgaccgata	aggccgaact	gagatgaagc	tctcaaacac	ccgccctcat	gcagctactg	240
ccacttctct	tatggacata	atttttcgaa	gaattacaga	ctagcctcca	actttccacg	300
cgcttccttt	ccgatctgaa	aacagggcgt	atgaactccg	acggttggtt	gaggaaataa	360
cgatccggg	ttatacgatc	tgctggtttg	atttgaaaat	catttctatc	ggaactatac	420
gctccatata	ggtgcgagga	actgttcgat	tataaaccca	aagcattggc	attcaattcc	480
ccgacatcac	cggacgtatc	atatacgggt	tggttcggat	cactttctaa	tacgacttat	540
tgcaacagaa	atataattcg	ccacgatgaa	gaaaaaaata	atttatcttc	ggtagccatc	600
ttattggtgg	ctatcggtt	tg				622

(2) INFORMATION FOR SEQ ID NO:839

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 590 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...590

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:839

gggctgggca	gttgctggtg	tcaggtcttc	ggatcgctta	caccgaatgg	caggaggcta	60
ttcagtatgt	gcgcaatacg	ctgaatatcc	cctatcagtg	gaagtcctgt	gcatcatcgc	120
tatcggacac	aaagccgagc	acagggaccg	cgccctgcat	cggaattgaa	gtgggagAAC	180
gtttttatat	gcgaattccc	gattgggaga	gtgtgtcgca	tgattgatcc	tgtaggactg	240
cccgaacttt	cgtgcgcata	gtgcttgctg	gcagtggaaa	tctggctacc	caaaggctct	300
ggccttgctc	gaagccgcca	gtccgcccgt	tcaggtatgg	agcggaatgc	cgagcatgcc	360
gaacggttgg	cttccatgct	gccgggagca	acgctaccga	tcggacagag	gagctactct	420
gcgatgcaga	gctttatctc	ctgcagttag	cgaccatgct	ctcgaatccg	tagctgctac	480
ccttccgccc	catcggaat	atgggcacat	acggctggca	gtatgccgat	ggataccctc	540
gcccttatca	tgcgagatc	gggtcttct	atcctcttca	gacattcacc		590

(2) INFORMATION FOR SEQ ID NO:840

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1104 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1104

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:840

```

cggtgtaagt cgccaattag gttcttctat gaaatctgtc ggagaggttt ggccatcggt      60
cgcaccttcg aggaggctat ccagaaggga ttgcgtatat cggtcagggc atgcacgggt      120
tcgtagagaa caaagagctc gtgattccaa tatagacaag gcactgaatg agccgaccga      180
cagacgcatt ttcgtctaag caaggcattt cgtcaagggt acacggtaga taaaatacat      240
gaactactaa gatcgatcgc tggtttctgg aaaaactcta tggtatcggt accctgcaga      300
ggaaatggaa gagttcgaca agctcgaaga tctttcacct gctttttggc tgaggccaaa      360
ttgcgcgggt tttccgattt tcaggtagct cggctgtact caagccggat gctacttcga      420
tgaaaagcgc aaccaatcag gacgtgccat gcgaaaggag ctgggaatcc taccggtggg      480
taagcgtatc atacgcttgc agcggagtat cctgctcata cgaactatct ctacctgact      540
atagtggcga tcgtcatgat gtagcctatg agacgacaag cgttccgtgt tgtactcggg      600
tcgggtgcat accgtatcgg tagctcgggtg gagtttgctg gtgtggtgtc aatgctctgg      660
ctaccatccg taaggaaggc tatcgggtccg tcatgatcaa ctataatccc gagacgggtga      720
gtacggacta tgatatagtg acaggctcta cttcgacgaa ctgacattcg agcgcgtaat      780
ggatttcttg aactggaaaa tctcatggc gttattgttt ccacaggggg acaatcccga      840
acaaccttgc agttcgtctc gatgaacagc atgtgcccac ccgggtactt ccgcacagag      900
tattgacaat gccgaggatc gtcataaatt ccagccatgt tggataaatt gggtatcgat      960
cagccccgtt ggcaggagct tcttcgatgg acgacattga cggattcgtt gccgaagtcg     1020
gttatcccg      ttggttcgtc cgagctacgt cctttccggg gcagctatga atgtgtgccc     1080
aatgatgaag      aatttcacg      tttc                                     1104

```

(2) INFORMATION FOR SEQ ID NO:841

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4902 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4902

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:841

```

ggcttcgata ctgcagctg tgggatcttc tccagcattc acgagcagat gcggacatca      60
accgcggagt cgaccgatcg gatcgatccg agcagggacc ggagaccaag gtatgatgtt      120
cggctacgcc acgaacgaga cggagaatac atgcccctga cagtggatct ggcacaccac      180
ctcctctacg aattggcgct atccgcgaag agccttcttc tccgatgcct tatttgcgcc      240
ctgatccaag agccaagtga cgatcgaaca tgacgatgaa ggcagacccg tccgatagac      300
acgatcgtga tttccacca gcatgacgaa tttgtccaag catggacggg atttcagaag      360
cagaagccga ccggatgatg caggagcgca tcatcatgac atagtacca tactgatccc      420
ccgagtgaaa atgtctgtaca accggagatc gcagccctat tcgacgaaaa ggtacgccta      480
ttcgtcaatc tacgggtaag tttgtgatag gagggccaca tggagacacg ggcctgacgg      540
acgaaagatc atcgtggata cttatggagg cagggtctct catggcgggg agcattttcc      600
ggcaaggacc cgtccaagggt agatcgctcc gcggctttgc cgcccagacac atagccaaaa      660
acatgggtggc agcgggctgt gccgacaaat gcttgtacag gtagcctatg ccatcggtgt      720
agcagagccg gtaagatata cgtcaatacg aaaggccgga gtcattgtgg tctatcggat      780
ggccaatagc ggagaagatc aagaagattt tcgatatgcg tcccttacgcc atcagcaacg      840
actgaaactc cgcaatccga tatacgaaga gaccgcagca taggccactt cgggcgcgaa      900
ccctacgaag catacaaaac ctttgtcgat ggcacggaac ggaacagatg cgaatcgtgg      960

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agctattcac	atgggaaaag	tggattacgt	agataagatc	agggccgagt	tccgtctgtc	1020
gtaatcacac	ctgcctcctt	ttatcgcgaag	acaaaggctc	tgccattgac	ttcgcttttt	1080
gctttactaa	agcttggcag	acagaagctg	cttgttcctt	tcttagggat	gcagagagga	1140
agtttattct	accggttttt	cacttcatca	gctacaagac	gaccaacggg	gcagcagagg	1200
atagatagat	cgtatcgctc	actgctcggt	gagcgttccg	caccacaact	ccggcagagt	1260
ggtattgcca	agcgccattt	cagcccttcg	gccgtgacgg	ctgatccgct	gaaactgaat	1320
atagaaaatt	gtctccctcg	cttccacttc	tatgcgagcc	ttcccgtaa	aacccaaaaa	1380
cattccgtaa	tccgtaggca	tcacgatctt	ttcgaaaaag	cggatatatc	gggcagatgt	1440
gccagattgc	cgacaaaatg	atcttcacga	gccccgatgt	ccccagcaga	cagacctcgc	1500
gaggggaata	ggctctcgccg	agaatgtaac	tgtcttcgtc	agatcattgg	tatcctgctc	1560
gtctatgcat	gtagtttttc	tgcaggcaaa	atatgtcgcg	aggctgtaaa	agaatccagt	1620
cgcccactac	tgcattccggc	tctgcacat	agtccagcaa	attctgatgg	ctccatcgca	1680
acagacgatg	gtaccttcag	gatgctccga	tgtctcccgga	ggatagcaag	ggggaggatt	1740
ttacggggaa	attccccctt	agccgaataa	caaaaagcgg	agctgtctcc	ggagtaagcg	1800
agggaaagaa	aatataggtc	gatgctgatt	gtggcctgtc	gttgcatctt	gcgccaccgg	1860
aatatcccag	aacggacata	acggatttga	cggcaaagac	gacagtgggtg	aatggctgcc	1920
ggatttatag	aaaagggaata	agctgatgat	attggctacg	accagcacac	ccagtgtctg	1980
cggatgcgac	gcgccaacca	aatcatccca	caaagctgat	tacagtggca	agcgtatcgg	2040
cccacggcac	aagactatcg	tatagtggga	caacacatag	aacatcgga	gaaaagccac	2100
cgtagcccag	caaggctgat	ccacaggaca	cgcggggaga	tgatacga	ggcacctctt	2160
ccgtcccttc	gcgggtggcga	agccacatca	cccagccgat	aatacgggtga	tcagatagta	2220
gacattgatg	agcacattgc	cgtagaactg	cgcgccgatcg	agagataaat	gtagaagagc	2280
ggcaggacga	tccccacagg	ccaagccaga	cactcgctt	atattcgaga	tagacccaaa	2340
taaaattgac	gatgctgctg	ccagctcgat	gggatgagcc	acaatgaatt	ggatcacccg	2400
ttcatcatcg	gattagaaat	cgattgtcag	actaccagct	gcattaaatc	ggcctgagga	2460
taataacgca	gatcggcata	tgcacttagt	tctccggatc	ctgtacgtaa	ccggcatcgt	2520
agatgtaggc	attggagcca	tacatgagtt	gaagagatta	ttgagctgta	cgcccagctg	2580
cactctctta	acgaagtaac	cggcagcaca	tagccgaggc	ggaggtcgtt	cacccaatag	2640
gaggaagcat	gcgatcgctg	cgctgtgtat	tgtccagata	ttgcttgctg	acgaacggct	2700
cgtccaagcc	atttcgaaac	cgccatgaga	gagggtaagc	atgcgccggc	aatgacattg	2760
ggcgagtagg	ctatatccgt	gcttttcgagg	gtccctcctt	gagttcgagc	cagttgttagt	2820
ccgcatcata	tacggatgta	tatgtacgta	gcggjtcgatt	ttgttgcgac	tcatatggaa	2880
agaagcatcc	cacgcagcaa	acgaggaagc	atctgccaac	cgagagtcag	ctccagtccc	2940
tacggtagct	ttcggggacg	ttgcttgtga	gcatctgtcc	cacatcgcta	aacggccatc	3000
cagcacgagt	ttgtccctgt	attgcatata	atagagacta	ctccggccga	caagaggggc	3060
gaagcatagc	ggtagcccag	ctcatagcga	tcagtcgctc	aggcgtagga	tactgtccta	3120
ttccggcttc	gggtgattgg	ttctgttagg	ctcgcggtgt	gctaccgcaa	cagaagcata	3180
ggcagatgag	catcgctcgaa	actataggtg	agaccggcct	tcggattgag	gaagggaagg	3240
tcttgtccaa	atcgatgtgc	tgcatacttc	ccgtgtacctc	atctattcgt	cctgtgatgcc	3300
gtttatcggt	tagccgatgg	tacgatactg	gagtcggcat	acatgttcag	ttccggagtg	3360
atctgccagt	ttggctttggc	aaggctgcac	cttctctttt	gtctgccctg	ttccgataat	3420
attcgaagtc	ggagctaagg	gctgattgta	ctttttgatg	taagtgatac	ggccgaagtg	3480
tctcctttat	agatattgcc	cgaggccccg	aactgcaaat	cccatgcacg	gtgtgccagt	3540
taagcgaacc	gatgagtcct	ccgaagtcat	tgtccagtag	ttctgacgga	tgagatccgt	3600
ttctcttcacg	gtcacactgt	tttccaatag	ggctgcagtg	catattcctt	tagttacgtc	3660
cggtagcagata	ttcgtcgtat	agccatatcc	ggcgtgtgag	tgtgccgtga	ggttgaggat	3720
aacgaaggag	agaagctgtg	cgatcatgat	gcatggtagt	gacgctgtc	gtattgtcgg	3780
tattgtggta	gtagtgcggg	actccttgcg	cgteccacgta	caaagaccgg	cactgtttga	3840
tcggcgggcca	tatttggctt	catcctcctt	gaaagaccgt	tccatgcgat	accgtaact	3900
tcttttcctc	cgaaagtgat	aacctgagag	ccgtgttgc	accgaaatag	cccacctgtg	3960
cgaaataggt	ttcagatcca	cgcttctctt	atccacgtag	ccgtccgaac	cgattttgac	4020
aggcggggcat	ccactgcccc	atggcgaccg	atgcgtcccg	taccgagttg	accgatccgg	4080
ggaatgtgcc	gaacgaacct	ccgctcaaat	cgacacgcca	taaggagcca	gtcccaaatt	4140
atccgtacgc	atattgacac	ttgccccaaa	gctccggcac	cattgggtgga	agtagccaca	4200
cctcgctgca	cctgaggtct	tcgatggaag	aggcgaagtc	gggcatattc	acccaaaaga	4260
cggctgagat	tcggagtcgt	tgaggggtac	tccattggta	gttatgttga	tggattggca	4320
tcgggtgccac	gcacgcgaaa	gccggaatat	ccgatacccc	tcgggcatcg	ctggtggcta	4380
ccacggaggg	agtcagcatc	agcagatagg	gatgtcacga	ccataattgg	acttggaaag	4440
ttcggccttg	cgaacgtttg	gtaagcgaca	gggtttttcg	ccgtggcgcg	agtagctacg	4500
acctgtacgt	ctggagctgc	acattgctaa	gactatctat	ctcgctgttg	gagacgggtg	4560
ttgtgccgtc	aggcagaaag	gcaggacggc	taaggcggca	atcatggaag	ttttttcata	4620
aatctcttat	cattgaagtt	ggacaaagaa	gagagggggg	aatgattgct	tcgccgtgaa	4680
gatagtcaga	cggagagttt	cctagccggg	attatccggg	tcaggtgatg	agggtttggt	4740
ctcagccatc	caccattccg	attgctacag	gaagcacccc	ttctcccaat	tttatgggac	4800
aagataagaa	aacgttcgtc	cttcagttat	cgggacgata	ccgctcggca	tttcatcttc	4860
gagaatgctc	aagtagctga	tatagcggct	ctcggctatc	ct		4902

(2) INFORMATION FOR SEQ ID NO:842

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 310 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...310

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:842

```

ggggatctac tgcattacgg aatggctgct cgactgaggc gaagaggtgc tattcgacct      60
cccaantgcy ctcgaaaggg aaaatcttga ttctgatgtt cggcgcttgt ccatttgggt      120
cacttgaaan cggaatggct cgtacacgac tgtatcgccc acatggggga gttcctgctt      180
gatttccaag aagagccact tagcgtatct acctcgctcc ccnattcacc gaaagcattt      240
tccggagggtc nagatagtgt cgaacatcng agacatacgt ntntccttca anaaataact      300
gcnatcccc                                     310

```

(2) INFORMATION FOR SEQ ID NO:843

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 700 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...700

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:843

```

agtctgtttt ttagaacctt ccaaatatag acattccaca gctaagtaat gctccgcctt      60
tgatgggaca gtcgtatctg caataacctgt ttgagctctca tagagcatcg agacaaacaa      120
taacctcccc aaaaagaaaa gggggggcga ccacatgccc gctccccctg cttttccctt      180
atcaggggtct tgttttttag aatgaacat tgaatgtagc caaggctgca aaaacttcgc      240
ccccgattca tatgtcgtag tagctcctgc cccaagggtg ttggagatgc gatatcgtag      300
gccatgagag caccaaggct aaatttgcca ttggcatacg tgctgccata gcatgcttat      360
tgtctacatc catatataaa taattattgt tttataagaa agacctgcct gaccggctaa      420
aaccaaatca tgacggctgt tttccaaatc agcttgatgg ggctgaaacc ggcaacggcc      480
ataaaggagg agaacttcca gaattaagac ttttccaagt ggcacccctc tactgcgcac      540
ttccagataa tggatatggaa gagcagttgc ctccgcatag gagaatccta ttgagactgt      600
tgcgggggag tttcattgag ctcttttgct gcagagcgat tcttagtgct ttcgggaaaag      660
gtcaaacctc cggtatatgg acatcgggca acagaaattt                                     700

```

(2) INFORMATION FOR SEQ ID NO:844

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 575 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...575

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:844

```

ccccgattttt atcaggacag caaggttact tgccggatgc gaacaaaatt cagggtgaaag      60
ctgaaaatta tgaacaggca gtagccatta taaaaactgg caagggtgaag acgtgatgaa      120
ccatgacgat gaagaacagg tcattttgtt gaaggagaaa cgctattgga tacctccgaa      180
aatctttctc ccaaagaaac ggaggtcgtc cgaccataga ggtcttcgat gacaagggaa      240
aggaatcacc aataatttga acccataaat atcagagggt atggctaata tatgaccaat      300
ctgttcttct gctccacaga gaacaaagag aacctgaaaa cggagaaaac tacatgacgg      360
atactttttt cgggagtatc ttttcggtc ccaatctttc atctgttgtc ttcgatcccg      420
gactgccgat aatgcaatgt acacagtcgg tattgaaggc tgacgatgtg caaaaagacc      480
tcggcgagaaa tcagggtcgtc cttacacgaa tgttagggtc accttacggg ccgtttaagc      540
gtccttacag accggttacg tcgaccttac agacc                                575

```

(2) INFORMATION FOR SEQ ID NO:845

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1010 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1010

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:845

```

ggcggggtgg ctatccgtct cctacaacct cgcggcggat tattcctggt ggaaacggga      60
gccaacgctc atcgccggtt gcccataac cggcatacgc ccgtctgacc ttgctgccga      120
tcccccgctc gtcgctgcgc atggcagcga atataacgcc acgactctgg agccggggca      180
tgtacatgag gatgtttttt cgactgcgaa gcacgctaca gtttcgataa ggtttgggaa      240
gtatcgtttc gatgcgcaat ctgttcgata gtcgcatgta tcttatccgt caacgacgga      300
gtacaacgct ttttccaccg ctatcccat tcgcgggtcg gaatgcttgc cacagtcttt      360
ttccgctact gattttcttt attcgggtata gcgcccagga tcgtattgag attctttctg      420
aatttcggta cgatttttct ttccggcgagt aatttcgtcg atcgaaattac tcgctgcagc      480
tatgcaaggc aaatcttggc aacaaaattc atagaatccg acctgcaaac atgaatttcg      540
caacaaaatc gcttcctgca agctgcaaac atgaatttcg gcaacaaatc gcttcctgca      600

```

560

agctgcaata	agcaattttg	ttgccaagca	gaccttttgca	agcttgacagc	aaggaatttc	660
gtcgacaaaa	ttacacaatg	cataccgcgg	caaggaattt	cggcaacaaa	atcatcaa	720
gcatatttca	gccaaaattt	cgatagagaa	atttcaaata	catgctttcg	gcaatcaatc	780
tttgacataa	aattttccatt	gccgaacggc	gataagaaac	tttgccaccg	aagtgatatg	840
tattcccctt	aatcttttatt	ccaatatata	tgattggcag	gaaatagttt	catccactaa	900
attacaataa	tcgtatgact	gcttttcggat	aagcttaaga	caagaaatat	ataattctat	960
cggtttttcta	tccacaacaa	attattttact	actttttatcg	aagcaaacga		1010

(2) INFORMATION FOR SEQ ID NO:846

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 741 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...741

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:846

ctgtgagaag	aaactgctgc	gcaggggtgga	cctattcgat	gtgtacgaga	aagaacttgc	60
ctgccggaaa	gaagagttat	gcagtgcgct	tcttcctggc	aatgatgaga	agacgcttaa	120
cgacaaacag	atagaggcta	tcatggcaag	atacgggacg	actctggagc	aaaagctcgg	180
tgcgcaactc	cgctgaaatc	aaacgaaaat	cgacaaaata	agaatcgaca	tatcattatg	240
ggacggcatt	tgaatatcgt	aaagcaagga	aaatgaaacg	ctgggggcaat	atggccgcgt	300
cttcaccaag	ttaggaaagg	aaatcaccat	cgctgccaaa	gaagcggccc	cgacgtggag	360
accaatccgc	gtctgcgtat	cctcgtgcag	acgccaaagaa	ggagaacatg	cgaaggaga	420
acgtggaacg	cgccatcaaa	aagctacctc	caaagactat	acggactaca	aagagatgaa	480
ctatgagggc	atggtcctta	cggcatcgcg	atcttcgtgg	agacagctac	ggacaataca	540
cacgtaccgt	ggccaatgta	cgcagctact	tcaacaaaca	tggcggatgc	tcggtacttc	600
cggcagcttg	gaattcctct	tccagcacia	atgcgtattc	acatcgtaaa	gaaagacgat	660
atggatctcg	aaagccttga	actcgactga	tagactacgg	tgtggacgaa	ctggaagagg	720
ggatcctcna	gagtcaggty	c				741

(2) INFORMATION FOR SEQ ID NO:847

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 540 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:847

caggagacca	gcgtaggcct	acggtgctca	ttacaacatg	ctaattatcg	tgcattatgg	60
ccaattaaag	taaaacgaga	acgaccttag	aaatttttcc	gttttgcgtc	ttcaaaattc	120
gtttccccc	ttgtttggga	agttcagctc	aatagcagat	cgacgacctc	gactcccctt	180
gtcgtatttg	aagcatatct	cttataatag	aaagaagaca	cgtgaagatg	gtgatgatgt	240
cattttcagt	acacatcgct	tttctttatc	tttgtagagc	atggtttcga	atttggaccg	300
gcttttgaaa	tcagatactt	ctaagaaaacg	tttcaaagaa	ctagtatttc	gaatcgatta	360
cccctgtgca	atgggtggctg	atagcaggta	tctgctcttt	gtttttgaga	tttttaccct	420
gggtttcttc	ttggcttgat	cgtatgggag	cttttgctgc	cattataaccg	gcggccttgg	480
ggttgctctat	gtgtggcana	ccggtttttt	atcgtggctt	cgctgctctc	gctcttcctc	540

(2) INFORMATION FOR SEQ ID NO:848

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 896 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...896

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:848

gattaagaac	caagatgaaa	aaagtatttc	aagatcttcc	tttgggggtg	gttggccggt	60
gcagtgatcg	gcacttttat	gttctctctg	caaaagtcaa	agccaaaccc	aaagagtacc	120
aaatcgaaac	ggtaaccaag	caagacagat	cgagagcaag	acggtgatca	cgggtacggt	180
agagccgcgc	gacgaatgct	catcaaacca	cagatgaacg	gcatcgtagc	cgaactgctg	240
cacgagcccg	agacgtggta	cagagcggag	acgtgatcgc	ccgcctcact	gtcgtccgga	300
aatgatccag	cttagtcagg	ccgagagccg	tgtccgtatg	gcgagatttc	atacgagcaa	360
ggcaaagaat	cgtatgcccc	cagcaaagat	ctttcgacaa	atcggtcata	gctctcgaag	420
agttcgaggc	agccgaggca	atttcgccaa	aatcaaagag	gaactgtcca	atgcgcgtga	480
agccatggag	tcgtaaagaa	aggtgccagc	agccgtacag	ccaaacagag	caatacgtcg	540
tgcgcagcac	ggtaacaggt	aagatcctga	atgtcccggg	caaagtggta	attcggtcac	600
tcaggccaat	acgttcaacg	agggaacgac	catcgctcga	tagcggatat	gaacgatttg	660
atttttgtcg	gcaagataga	cgagacgaag	tcggtcgcat	tcgactgggc	tctcccacgc	720
gcatttcggt	gggagatttg	ggaaagaaa	ttttcctgcc	acagtagaat	accttgcgcc	780
caaggaagta	tcagtaaacg	gagctgtact	gttcgaagtg	aaagcttcgg	tactattcca	840
agcgacagag	taatccgtgc	cggctatagt	gccaatgctg	aaatcgtact	cgaagg	896

(2) INFORMATION FOR SEQ ID NO:849

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 507 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:849

gagaaaatta	caagagcaag	tcctgatatc	caaaagacga	agggtttgaa	cgatcatcat	60
atttatctgc	aaggaacatt	accgcaagga	aaccaaataa	acgaaataag	gtaacatgat	120
tatctatttt	ttctatttgg	atgaggcgat	tcgatagcgg	aattaccgat	attaagcagg	180
gtaaaatcgc	tgtccgcgga	agttcgtaca	cattacgacc	gtcgatgacc	aaagatgcag	240
ccatctttga	gagagagctg	accaatcagg	cattctgaat	tccttccatt	ccgtacatgg	300
aacagagcct	ctgctncccc	gactggatcg	nacatatccg	tggatattcc	aatttggcgc	360
ccaatctttt	ttgtgcctct	ttcatcgncg	cagatcggac	acccgaactc	tgcaaccaac	420
ttccaacagt	ttctcgatga	gaccagagaa	ggagcttcac	gcataatcatc	ggtaccgggt	480
ttgaatgaca	cccccatatc	gctacac				507

(2) INFORMATION FOR SEQ ID NO:850

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2681 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2681

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:850

gccaaaggat	gggcccggcg	tattctcttc	aatgagcaag	cgaaagccag	ctggatcggt	60
tcttcgcacg	acccgatacg	ctcagcctcg	gtatctgcac	ggctgccagc	tgatggccga	120
gttggaaact	ctataccccg	aacacgactc	aagcacaagc	ttgtccacaa	cgaatcgcag	180
aaattcgaaa	gcacatcgtc	actctcgaaa	tcccgcataa	cgactccatc	atgctcggca	240
atctgccgga	agcaagatcg	gtgtatgggtg	tgctcatggc	gagggtcggt	tcagctcccc	300
tacgaggaga	aagcctacca	tgtggtggcc	aagtacgaat	acgcggctat	cctgccaatc	360
ccaacggatc	gccacaccgc	atagccggat	tggcagcgcg	gatggccgcc	atctgacgat	420
gatgccacat	ccggagcgga	gatattcccc	tggcagtgcg	gttattatcc	cgaatcacaa	480
cgacacgaac	tcaggtgaca	ccttggtatg	aggctttccg	caacgcttac	gagtggatac	540
caagcagggtg	aaaaatggat	gatcgctcgcc	cccaactgac	agaggagcac	tgcttttccg	600
catcgactc	acgcatgtaa	aaggcgtggg	tagcgtgtgg	caaggcagct	gctttcggct	660
atgggcagtc	ccgaagccat	cttttcgaca	ggaaggagct	ggtacagagg	ctaccgaaaag	720
cacctcgccg	cctgccgatg	ccatcttctc	tccttcgggtc	atggagggaag	cacgccgaaa	780
gttgatcaag	ccctcaaagc	cggctctgaat	atgtatttca	tcaccgatga	taatatacctt	840
accgcttgaa	agaatgtgtc	gacgccccca	tccttcttta	ttcaaaggca	atgtcgatct	900
ctcgccacgt	aggggtgctg	gcattgttag	tcgcgcaata	tcacggccta	cggacgtaca	960
gccacggagc	gaatcgatc	ggattggctg	aaaccatccc	cgatttgctt	atcgtcagcg	1020
gactggcgtc	ggcgctcgatg	tcgcagctca	taaggccgct	ttggacaatg	gcttgcccct	1080
gtagctgtat	tggcccatgg	attggacagg	atttatccga	gcggtcacgt	tccattgcta	1140
tggagatgct	ccgaaacgga	ggcttgctca	cggattccct	atggggactg	aaccggagcg	1200
attcaatttc	gtcggtcgca	atcgctcgta	gcaggcttgt	cggacgccac	acttgtgatc	1260
gaatcggcgc	aaaaggaggc	tccctcatca	ctgccggact	ggcattcggc	tacaatcgcg	1320
aagactggct	ctaccgggac	gagccacgga	tagcgttcg	gccggctgca	atccttgata	1380
agggatcaaa	aagccgcgct	gtcagctcgc	gctcaagatg	tctgacgctg	ctcgattgga	1440
gttctaccat	agacgccaaa	cctcagacat	gaatttccgt	cccgatagtt	ggccggatac	1500


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ccccgtagcc gaatgtcttt cagagcaggc acagcctcgg tggacgagct gacacgcgct 1560
accggactcc tataaacgat gtttctgctc agcttttctga cctcgaattg gacggacggt 1620
acagtctcag cccggtggca tatactccgt tatataaatt gtacgagaag atgtctccca 1680
ccttgcccat actcataccc gtttataaaa gggatgtcgc agactgctgg aggaactgta 1740
taagcaggcc gaagaactat ccgtggctac gaaatcattc ttggagacga ctgttccggc 1800
gaaccttaca ctttcaatat atcgcttacg aacaggaggg actgtgccga cttgtcagt 1860
ccaagagaac atgggagccg gccgtctgcg caatcgctta gcagaagaag ccaaggcgag 1920
cagctcctta tctcgcactc cgataccctg ccggcatcac cgacttcacg gaacgctatc 1980
tgcgacatgc ctccggcaca acagtcgtag tggagggttc gtctacccgc ccaaatcgac 2040
caatcccttc cggcaacgta tggcgccgaa gtggaaagtc gatcggcgga agagcgagca 2100
cgaaaaccca ctccggatcc atctcaatgg ctttcatgat cccaagaaaa cagatgttgc 2160
caccggcttc cctcccaata tgggtatggg gtatgaagac atcctttcgg cgagcgtctg 2220
cgacaagccg gcatcccat cctacatatc gataccctgt agaacattac cactgcgata 2280
ctgccgaggg atttttggcc actcgcgtag ctatctggac aatctctatt gtcaccgga 2340
agaattagcc gattggtaag cctgctcaga gcatacaatt tgctgaaacg gctacacctt 2400
agcgaatggg agctgctttg tggccactga tccgatcctc attggaaaag agctcacggg 2460
agctaagccc tctctcctcc tcttcagcct gtataagctc tatacgtagc ctccctctct 2520
ttgggtgtgt ctgaaaaaag ctgatcctag aaagatcaga aaaagcaata attatatcga 2580
aatgtttgac ctctctcga gtgtcaactt tttttcagta cacgtcagtt cgtaaaaatg 2640
gcggttagcg tttgaaaaa cgtggctcgg gaattttttc g 2681

```

(2) INFORMATION FOR SEQ ID NO:851

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 601 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...601

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:851

```

gtcgtatccg aacaattggt cggagccggt ttcaatgaga tactcaacat tcgcttacgg 60
ccggttctta ttacgaaggt cttaagagcc atccgagaag atggcagtg agctgatgaa 120
tccgctgagt caggagctta actgcatagg cagactctgc tattcggagg attggagacg 180
ctcagccaca acctcctcgt aagcatctct ccctctatct ctttgaatgg ggtaaatgct 240
atcgctccat gccgcaaagc gcacggacga gactccctt gcggcctatg cagagacgat 300
cgcctcggca tttggatatg cggacaacgg gtgcacaata gctggcacac cccgaagaac 360
cgacttcggt atttgaactg aaagctgtgg taaacaggta ctttgccgcg tagggatcga 420
aaccggagct tatacgctga aacagctgac aatgatctgt acgcatctgc catggaggtc 480
aagactcgtt gggcaaactg ttgggtacat tcggaacggt atcaacggaa ctgatcaaag 540
cttcgaaatn gagcaaccg ttactttgcc gaatgctttg ggatgcccc a tgagcgaatc 600
g 601

```

(2) INFORMATION FOR SEQ ID NO:852

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 848 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...848

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:852

```

ggccgaagcc cagtacaata tggctcgcaa cggtgccgaa cgcgaagaca gctggcagct      60
tctgccctcg tcgatagagc gagaggagcc gtcgccgagt ggagtcgtac atcaacgaaa      120
cctacctcat cgccccacgg gcaggcgagt gtcggagata ttcccccagg ccggcgaaact      180
cgtaggtacc ggcgcactat catgaatatc gccgagatgg gcgatatgtg ggccagcttt      240
gccgtcgtga ggatttcctc agcagcatga ccatgggagc cgttctggag actgggtgcc      300
ggctctgaat gaagaaaaag tacgcttcaa gatcacattc atcagaacat gggtacctat      360
gctgcctgga aagcgaccaa gacaacaggg catacgacct gaagacctc gaggtaaagg      420
ccacccttgc ggataaagac aggcacaaaa gctacgcccg ggtatgtccg tgatcatacg      480
caagtaacga gagcagtaag gccatgcacg ggacagccct tatagccacc atgcgtagaa      540
ggtgcgacaa ctgacgagtc gcgtcctctt cctcttctgc atggtgatgc tctgtcttt      600
tgctgtctct tcttccctc catcatggat atggggtgcc gcagaacctg cctgcgggta      660
ttgtggatct cgatcgtaca cagacgcgcg caccatagca cgccacctca attcgatgga      720
gcaaacccaa atcgtaaaca gttcgaaggc tgcgtgaggc tcgcttgacg tacagcgagg      780
cgagtatcgt actactatat acccgaggaa tgacacggat gcctacgcac agagcagcca      840
agctctct
848

```

(2) INFORMATION FOR SEQ ID NO:853

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 303 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...303

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:853

```

aaaagaaaca aaaagatatg tccatttgc caatccatag aagttcgac taccgattt      60
tggagtctat ctgaagacaa ttgtatctaa aacatctgat cttcagacag atatgccttt      120
tctcataccg acgactatta tttcttcgct tcatagaggg ggggcaatgt cgtctgaata      180
ttgatttcaa ggaatgactt ttcgaaaagg atagtctggt tatcattcgt ccgggacagg      240
tacatgcac attgatgctt acaatcttcc ggcaaacttc cttattattg actctattgg      300
taa
303

```

(2) INFORMATION FOR SEQ ID NO:854

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 507 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...507
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:854

```

gcaatttggg caaatcacgc atgaaaaacc gttaacagcc attatttcat cagttacgag      60
tgcaagagca aaaattgaca attttcacct gaaaatgttg tctgaagagt gtttcaaaaa      120
attacaaaaa tgtttttcag acgagaccga acagccgaat acgtgaagca ggggattatt      180
tgattacctt tgaacacaga aacttagctt tgacaatata tgattacagc cgaacgttat      240
cacgaattag catgggacac cgcgtagtgg ggcacgatca caagtgcaga catcgcatgg      300
acacaactat cgtatccact ttatttgcag tgcaccggct cttattcgat cgggctgtga      360
gtcgatttcg gtgttatcaa agagttgcta tgcagtggct tgaagatcat tgggatcaca      420
agatgatgct atgggagcag gtccgttgct tcttgctttg cgtgcgactg tgccggacga      480
tctggttgca taccgttcaa tcccacc

```

(2) INFORMATION FOR SEQ ID NO:855

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 9159 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...9159
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:855

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ctgatttatg tattcgctca tctatctgtc aaaggtcgaa aagctcctgg ccaactcctc      60
cctatcgatg gatacagcat cgaaggcttc ctgtgcatca gtgcgaccag atcgggatcg      120
ttcacacgct cgccgttcac cacggcgagg aacccgtagt cggcagtggc tgatccgcca      180
catgaggcga tcggaggcga tcgtcagagc gatggctgct gctacggagg ctctcctac      240
actcccagga tacgtcttga gagcaagttg cgggtagcaa gtttccgagt gtagaaagga      300
aacgcccatc cacggcacgc ctgcaactga cataaccgaa gaggggcgca agtgctccca      360
ctgctcgggc agcttggccg tagcaaaata gcacgcaggc gatcctcttc tgctccggag      420
gtaagcccggt cgaagtactt actaacaatt ggccgatttc cgcttcgggtc ggaacagctt      480
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cgcgctcgggc gcggtcctaa ttggtataaa cggcttcgac ttccacgcta cgagccgggc      600
gattacctcg ctttcgtagc cttcgatctc ttccagcgga aagtcattcg ctgcaacgga      660
ggcagtgtct cgatagcagc ttccacagac gcattggtct ggattgtctc agtacacctt      720
ggggtgtagg ggcataatcg agaaaggcag atcgtccggg agcgggtcca tccgtccttc      780
tttgggagca tatccaaggc tattcgccga gcagtgggtc cagccactgc ttcattgtgt      840
cgtatccgcc cagccgctct cggttgatcc acagacgcac caagcctctt gcgacacgtc      900
ggccgcagct tcctcgctgt cgaggatgct aatgccactc gtttgagtcg aggggccccaa      960
ggggtacgc tatgggcgaa gcttctactt ccatgcttaa gtaatcgga caggacctcc      1020
gttgcaaaagt ctttattttac gagacgcaga acaaaccgga atctgtcatc cgatagagaa      1080

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tttttttgcc	cttccccgaa	tctcatcctt	tcagcacccc	atcgacgtcc	gaagcgttac	1140
ctcatccgat	actactatta	ctctcttccg	ataccgactc	aaaccaaaaa	gcattgacac	1200
atcggttat	acagggatcg	gttaccgccc	gaattttggt	gttcgtcgtt	cctcaaaacg	1260
tggcgcgtaa	tttttgcttc	tggtcgggaa	aatgaaaaat	tctcacgccca	caacgaaaca	1320
attctcgcgc	cattttttca	gaaaacacgc	gccgcaatcg	gcgcattttt	ggtcgtgttt	1380
ccatgacagc	aggctataga	cattggcgcg	atcggaatcg	ttcggggcgt	tatggctgca	1440
tgtcttattt	ctttactttt	gtggggagcg	aggcaaacac	tattcgcccg	ccatctccat	1500
tcttccaata	ccttcatttt	tttcagttaa	atgaatcgag	cacgaatcat	cgtagccggc	1560
atcggtccgg	aggagcatcg	gatattactc	ctgcagtgtc	atcggtctatc	ggccggtcga	1620
cgtagtcgtc	ggctataaat	actatttccg	ttttatcgaa	ccttattccg	tccggatacc	1680
cactgcgtgg	ataccggcat	gaagaaggag	cggcacgtgc	cgaggaagca	ttcgggtatg	1740
ccctcagcgg	caagacgggtc	tgcggatcag	ctccggcgat	gccggcatct	acgggtatggc	1800
tcctcttata	tataaatgaa	acgagccaaa	ggcgtggaga	tggacatcga	agtgtctgcc	1860
ggatcagtg	ttttcagaaa	gcggcttcgc	tgcgtgggtg	tcccatcggg	cgcacctctg	1920
ctcgtatctc	ctgagcgtac	tgatgacccc	ttggcgcgtc	tcgaaaagcg	catagtggca	1980
gcagcctncg	cggacttcgt	cacagctatt	acaatcctaa	gagcgaggcc	gatactggca	2040
gctctatcgt	ttcgtagaat	cttcatgcag	tatcgttcgg	ccgatacgc	gtcggacttg	2100
tccgtcagca	ggccgggaaga	ggagcagggtg	acggtgacga	ctctcggcga	attcgaccgg	2160
aagtgggtgga	tatgttcaat	gtggtactcg	taggcaattc	ccagtgtact	gctacgaagg	2220
gcactttatc	acccctcgcg	gctactaccc	cgaaaagaga	tcgaagccaa	aggtatcggg	2280
caggagatta	tgatcaagag	tttcgcacga	tcgagaaaga	gctgcaccgt	caggattggc	2340
ctttagacca	cagtgggctt	tgtctccatgc	cattcatacc	acagcggact	tcgacatgga	2400
gatatcctct	acacggatgc	cggtcgggtg	gcttctctgt	atgaaatgat	gaagccggac	2460
ggctgcgcac	gattgtcaca	gatgtgacca	tggttacctc	ggtattcgca	aggggggcaat	2520
ggagcgtctg	ggtgtggagg	ccaaatgcat	ctgcatgate	cgcgcgtggc	agaactggcc	2580
gctcgtcacg	gcataccgga	acgcaggcag	gcatacgcct	ggcgtggag	gagcaccccg	2640
atgctctttc	gccttcggca	atgcaccac	agccttccag	gaactggccg	atctgtccgt	2700
cgaggcaaa	cctctccggc	cgggatcatt	gcggcacccg	tcggttcgtc	cacgtacagg	2760
aatccaaaca	tgcctggaag	ccgttccgct	ccatccgaag	attatcgtcg	aaggccgtaa	2820
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gcatcgtgca	ggaagcaaga	atcagttgac	aatcgctgc			9159

(2) INFORMATION FOR SEQ ID NO:856

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 928 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...928

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:856

```

aggaaaaccgg cgaccgcaag cctgtgaact atgtgcttcc tccgggcggt tgcgttcaact      60
cgatccccag caagcacaga gtactcagca aaacgaacgt ccatgagcct gaaagtcagg      120
acactggcac cgggcgatgc acgggcttat ataagaacac gggctacgac ctgagacggt      180
ataagcggtt gcagatttta cgcatgccga acgccttcag gatgaagacg gcacgcatac      240
agggatggag atctatccgt cttcatccgc ttggggacgg actaccggaa caatattacg      300
aatactccat accgttgccg ctgactcctt tccgtactta ttcaccaata gcgaaagcga      360
tagagaaacc gtttgccga aagaaaatat gtgcacttca aactgtctgc cttactgat      420
attaagacga aacgcaacag gagaaagcag caggcaatcc tgctgccgac ttctatcgcc      480
ttttctccga cccgacccc aaaacacagg taatactgtg agcgttatgg gaaatccgaa      540
ctgagtgaag tcaagactat catgatcggt attcgtaata atagtactac atcaaaagcg      600
ccgagatatg ggtcaatgag ctcagactca cggactagat gagaaaggcg gatgggctgc      660
caataccacc atcaatatgc agcttacgat ttgggatcgg tgaatatgcg cggacagatg      720
ataaccgcag gattcgtgct ttggacgagt ctctcacaca gcgagccata gaagatacgc      780
gtacctcaac ttctccacca atttggagct tggcaagttc ttccccgaaa aagtcagatc      840
agcatacctt tctattactc ggtatcggat gagaaagtat ctccaatac aatccctttg      900
atcaggacat tctcctgaaa gatgctct

```

(2) INFORMATION FOR SEQ ID NO:857

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 392 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...392

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:857

```

tctgcgtgcc ctgacgggat tggagcgcg caagctgcgt gcagagttca agagatcatg      60
gctccatca atcatttgga agctcttttg gctgataggc attactgatg gagctgggtca      120
aaagcgaact gctggagata aaagagaata tggcgatact cgcaaaagcg agatcatata      180

```

tgcttcggaa gaattcaccc cgaagacttc tatgccgacg atgatatgat catcacccctt	240
tcgcaatggg ctacatcaag cgtacccctc tgagcgaatt cagaacgcag gctctggcgg	300
agtaagagcc aagggatcgg atactcgcga aagaagattt ccgggannta tatctactcg	360
gcctccatgc acgccaccat tatgtctgtc ca	392

(2) INFORMATION FOR SEQ ID NO:858

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 608 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:858

ccccgacttt ttgcattaag ttactaccga caaagttagc atccagtota gagcaggacg	60
actctgagca tttgcaaaac cgattgttgc gagcagcaag tagctgcaa aatcattttc	120
ttcatttttc gttctttttt gagttttttc tacaatgtaa cacactctct ctcgttcaaa	180
agtatgcta tacatacttc cgatgcagca aagatacaca atgaaacgta tctatgattc	240
aaatgaagat ttgcacttat cagggtggaat ctgcaaaacg cgaaaaacgg acaaattattg	300
gatgatataa aattattaca tacattttgca ccgcatttca aacaaaaaaa tgctactaag	360
gctgaatcgc tagctcagca ggtagagcac atccttttaa ggatggggtc ctgggttcga	420
accccgaggc attcacgaaa aaaaggggccc atgtcaaaat tcgggttttt tgaagtacgc	480
ctcaaaaagt ggatattaaa ttatccttgt gttatagaaa gagtccggta caataccggc	540
tcttttttgt taatcttgcc ttaattctac tatttctata atnggtattc ctccaatgca	600
ttgataaa	608

(2) INFORMATION FOR SEQ ID NO:859

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 778 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...778

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:859

tcttttcttc ctctgtataa gaagatcttt cactatcaat cacatccata acccacatga	60
agtactgtgt gcactaccat ggtgagaaac tttaattaat caaagatgac tgggttttgtt	120
tcacttttat atactttttc tatcgcacgc tcacctgctc cgggatctgc atctcccata	180

agcagaatcc	gatgtcttga	tactcccaaa	taaaggcaat	agaagcgata	ttgttgatcat	240
ccatttcgat	aatgggcggg	atgcatatcg	cttcaatata	tggttcattga	tcgttcacatca	300
tttacgttct	catcttttgt	ctcctcgcc	tcttctagtt	gtgaattctc	atcaaagcct	360
catagatagt	ttcctcccca	tcatagtctt	ctttttttgt	ttgtacagtt	gttgccaaaa	420
tagctttcga	tattttacat	cagtctatct	aacgcaactt	gggaaggaga	aaggaaaata	480
atcctcccca	attgttggca	agttgaatcg	caggagactc	atctgtaata	tattctcttg	540
ccaagccctc	ctccattctt	cttttctcaa	tatacattct	gccagggtag	cgccttttct	600
tcattgacat	tttgacttag	catatcaatc	acaatggcaa	ctgatcatat	aagcctatcc	660
acattcgctt	tcattctgctc	ccgtccctggc	tgctcattgg	taataaccct	ttggtagcag	720
ttatatatga	atatgttcga	ttataanggc	tggtatttga	gttaagcatt	ttttatca	778

(2) INFORMATION FOR SEQ ID NO:860

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 559 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...559

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:860

gatcgtgtac	acagtctcgc	tatgttgggt	ttcgatgagc	aatacaggaa	aaaagtngcc	60
gaacattttt	cttcctccnt	anggagcggt	acttctacta	tgtctttact	gtgaaattaa	120
aacccggaca	gcgcgatttc	tttttcgggc	aaattttcct	ggtatgcaga	ctgccatggc	180
ttcgatcgtg	aacaaaccga	tatgaatcac	tttatgcagg	tcctcagata	tttggaccct	240
attcatatct	caaagcaacc	aatgataatg	gattccccat	gtcgagaatg	tattcaatca	300
gacggttacg	atcgggggaa	ccatcactca	gcctttacca	ttcagccgga	gggagaaaaac	360
aatgtgaagt	tgcagcgtgt	ggttgcaaa	ttgatgtgaa	tatcgtggaa	ggagtggaaa	420
atctgcagaa	gattgaactt	ttaatgctaa	tgtccactat	agattggtgc	ccaaatcagt	480
cagagcctat	caagttttac	ggncccggt	gaactaaggc	gagtaggtac	cacgaaccat	540
ggctttggct	attatgccg					559

(2) INFORMATION FOR SEQ ID NO:861

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 313 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...313

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:861

atgatggcta	cgggcgacga	agctctctat	gctcgactgg	aggcctatag	gagtcgctca	60
aagaaaaagt	cgttaaggcc	aatcgcgagc	tggcagagtg	aagtacaact	tcaaaacgaa	120
ttaaagccct	gtcctgcccc	gttgggtctcg	gcacaaaaaa	gatcggcagt	ctatagccgt	180
ggcttattta	tgagccctat	cggctgtagt	ctgcctttct	ttttctctat	tatcttttcg	240
aagtatgtga	agtcgttccc	gcttcgaatc	ggcaatccaa	agaatatagc	aaggctatgc	300
tcgatctgtc	gga					313

(2) INFORMATION FOR SEQ ID NO:862

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 632 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...632

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:862

tcgaacagct	gaagcattgt	ccgtacgtct	tcgttttggc	attcgtccta	tcacgttctt	60
tgaagagttg	ctctgctgcg	gcaaaactctt	cgggcgagtg	gaaccactt	cttttttcat	120
acgctccttg	gcctcttcaa	gtgtcagtga	ccttcgcgat	gagcctcttt	gatgtcgagc	180
atacgctcca	acttactttg	tcgaggctgt	caaaagtttc	atttgttttt	atgacctgca	240
tgtttttgag	caattagtga	tgaataacaa	cctcctcgca	gcttatcaaa	agctattgtg	300
gaggtatata	cactttcgtg	aatataacaa	tctcagaata	tattttgttc	tggtttttca	360
tcgaggaaaa	aagtgcata	gctcattacg	cccaagcagg	atacgagcct	gaaatgctcc	420
gattgtggtc	tgtgttttgt	gaaagcaggc	gogagatttt	tttcgttttg	gtttcacttt	480
ttttcttttc	cacgccaaaa	gcaaaaagtt	cacgtgccac	acttttgggt	gtcataaacc	540
gaaaatttag	gcgtgtgaac	ccaatcggat	agggatgata	catcctatgc	tgaatcggaa	600
gtgaatatgg	tgcaaaaaaa	gagggacagt	gc			632

(2) INFORMATION FOR SEQ ID NO:863

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1366 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1366

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:863

ccgggccgat	gctttcagct	cgtcttccga	ttcggaacga	gtagcgcgct	gggtgctggcg	60
atccctccgc	cgcgctccat	gatactcatg	tagctgtccc	ggcgagccgc	cattggaact	120
catcttcctt	gtagccgccc	aagacgaatg	gggtgtggctg	tccacaaagc	ccggcagtac	180
gcagcgctccc	gtggcgccag	ctcccgccag	ccttcgggtca	tggacggggc	tacgtccgcc	240
atgcgcgggc	gaaggcgatg	atgccgtcgc	ggataactac	tgcggcaggg	ccttgatggt	300
gtgtatctgc	cccattggctt	cgcggccgtg	tttggcttcg	gagcttgcca	ggtgacgaag	360
ctggggcgata	ttcttgatgt	agaggttcat	tgggtggggg	tgttaggcat	gtgtgtcggg	420
aaggaagctt	gccgatagaa	cccaccacgc	cacccggaag	aggggtggcgg	gtggtatctc	480
tatccttcaa	caaaaaacat	gctgacgttt	actccatgat	ccgtgattcg	aggatctgac	540
catggagaag	ttttcgatgc	cgaggtagta	ttcggcacag	tcgatcaggc	ctgcatgggt	600
acgagtcgga	tcacttcgct	gcctacgacg	gatacgcgta	tcggggcggt	tccatgcgta	660
ccatctcatg	agcgcgatag	acagcctctt	ggtgaagtcc	gtcaggttca	tggacacctg	720
cacgatgccg	cggtcgtaag	ctctacgccc	atggccttgc	agaagcgag	accgccgccg	780
aggagcgta	cctcttgggc	atggcgctcc	cgatggagag	gtcgttcgta	ttgggttcac	840
gttgtaagcg	acgagcggca	tgcgggcgcc	gactgccacg	gtccggctgt	cgggtgacga	900
tcggccgggc	cgaagtccgg	atgccagtcg	gttcgtgtat	cttctctgcc	atgccttcga	960
actcgccttt	gcggatcttg	ccaggttttc	acgggtgggga	gcggtagccg	atttctcata	1020
gaggaatacg	gcacgccgta	cttctcgctt	atcgtgcggc	ctacctcctt	ggcgaggggt	1080
cggcgtcttc	ggcagtcaca	ttcttgatcg	ggataaaagg	gatcacgcca	ctgcgccccat	1140
acgggggtgc	tgaccctgtg	gtttgggtcag	gtcgatagct	ctacggctat	gccaacggct	1200
tcgagcactg	cctcccgaa	gggctgggtt	cgccactac	ggtcacgacg	agacggttgt	1260
gatcctcatc	gttgatatagt	tcagcagctt	gacgccttcg	cgcgtgcgga	aggggtttac	1320
tatttttcga	ttttctcttt	gtcgcggcct	tccgagaagt	tgggca		1366

(2) INFORMATION FOR SEQ ID NO:864

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2540 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:864

tcacgaccga	agaatgccaa	aaccaaatta	aaaaccagaa	gaagattata	tcgtagtctc	60
agttaaagaa	ggcgagaaca	tcgaaagagc	actgaaacct	tcaaaagaaa	gtttgaaaaa	120
accggagcag	tacgcgaatt	gcgtgctgtc	aggcttttga	aaagccctcg	gtggccaagc	180
gcaagaagat	gcaaaagcca	tctacgtgaa	gcagcttcag	gttgccgaag	aataaagaag	240
aataatattg	ccgcagtctc	tttgcggctc	aagaggggtg	caatgatcga	gaccatctca	300
ttcacgacaa	tgaatgaaac	acccgacacc	atcgaaagat	tccctattat	ctacgctacg	360
aagttcacgc	gtcagaacga	accgtttgtg	acatgcacaa	gatttgaatc	gctatgccgc	420
tttcttcagt	gaacacacgg	ggaagtattc	gagccaagcg	aacgcgacaa	ggatgtcgcg	480
cgcgcttggc	cttctcttta	atggaagccg	gacaaaaaag	ctcttcggtt	cagcgagat	540
gagcgcggtg	aaaagctttt	acaaatacat	gggtcaaaatc	gggcttatgg	gcaaagtctt	600
gtccgaatgc	tgagggggacc	gaagaaagag	aggccgcacc	tgttttcgtc	ccgaacaatg	660
aatggaaaa	agtgtgaat	aagccctccg	tgaagatgat	ttcgaggccg	tacgggacag	720
actgattctg	gagacctgta	tgaagtgggt	ttgcggcggt	ccgaaatagc	cactctcaaa	780
gacacgcggg	agaagacaag	gccggctgca	tacgtatcat	cggcaaaagg	aataagagcg	840
aatagtacct	ttcggaatac	gtctgcaaga	tatgatagac	aatatcgga	tattcgtgaa	900
gaaaaagtag	ggaaatctga	tttttttttc	gttcttttga	tggcagacca	ctgacaggtg	960
aagtgggtcta	caagatagtt	gtacggcatt	ggcaaacgta	ccgcacctga	ccaagaggag	1020
tccgcatgtc	tgagacacag	cttcgccacc	gaaatgctca	atcacggagc	agatctgaat	1080
cgggtcaaaga	acttttaggg	cacgacagcc	tttctacgac	ggtgcaaaaca	cgcataatttc	1140

gttcgaacaa	cttagacaga	tgtataacgc	tcatccaggg	caaaaaaaga	aacgaccatg	1200
acagatgtaa	gaatccaagc	tctgctttcg	atgctaccga	ccaactgaaa	gattttgtac	1260
agaagaaaat	atccagctga	atcgcttgte	cgatggaata	acgggagccg	aagtcgtcct	1320
caactcgta	agcctgagac	cgtacaaaac	aaagaagcat	ctatcagggt	cttatccccg	1380
gcgagcactt	gttcgcgga	aagatagcag	acacctttga	gaagctattg	atctgacagt	1440
cgatgcactg	aaaagacaga	tcgaaaaaag	aaagaacaga	gaaaatagga	caaagaccaa	1500
aaagattcgt	cgaatgtttg	cgaattagaa	aatgtcacta	aatttgcagc	cgattcgcct	1560
ccccttaacc	gcatgaggct	aaggctgtga	ttttagcggg	aataagtcag	gcaccggggc	1620
cgaggggcag	ttaccagagt	ggccaaatgg	ggctgactgt	aactcactgg	cttacgcctt	1680
cggtggttcg	aatccatcac	tgcccaccc	ctctgcaaaa	cgagggaata	tcggattgcc	1740
aatgtagctc	agcggtagag	cactccttgg	taaggaagag	gtcccgggtt	caagtcccgg	1800
catcggtctt	gatgtggtta	gcgttttgta	taagcacaaa	caaacacatt	aaataaaaaca	1860
aaaacttaag	gttatggcaa	aagagcattt	taacagatcg	aaaccccacg	taacgtttgt	1920
acgatcggac	acgtggacca	cggttaagact	accttgacgg	tgcaatcaca	actgtgtttg	1980
caaagagggg	tctttcagaa	ctccgttcat	tgattcaatt	gataacgctc	ccgaagaaaa	2040
ggaacgtggt	atcacgataa	tacttcacac	ggtgaatacc	aaacagctaa	tcgtcactac	2100
gctcacgaga	ctgtccgggt	cacgcgcact	atgtgaagaa	catgggtacc	ggtgctctca	2160
gatggacggt	gctataatcg	ttgtagcagc	tacagacggc	cctatcctca	gactcgcgag	2220
cacatccttt	tggtcgtcga	ggtaaacggt	cctctctggt	tgttttcatg	aacaaatgtg	2280
acatggtaga	cgatgaagag	atgtcgagct	tggtgaaatg	gacatgcgcg	aactcctttc	2340
tttctacgat	ttgatggtga	caataccctt	atcatccgtg	gttctgctct	gggcgctttg	2400
atggagagcc	tcagtgggaa	gacaaggtga	tggagcttat	ggaagctggt	acaactgggt	2460
tcccctgcc	gagcgcgata	tcgacaaaac	gttcttgatc	cggttgaaga	cgtgttctct	2520
atcacgggtc	gtggtacggt					2540

(2) INFORMATION FOR SEQ ID NO:865

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1206 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1206

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:865

agaagtcggt	tggttttgcg	atacccttta	aagaangcgt	ctgcaatgtc	agccatcggt	60
attctggatt	ggtatgccat	ggaggatatt	atgctgttta	atactcaaat	atncaaaata	120
cctccctata	tccaatgaat	taccaaaca	aatatacgcc	aatcgccgtg	caaaggtctc	180
aaatggcggt	ttagcggttg	aaaaacgtgg	ctcggaatt	ttttcgtttt	ggcgcgggaa	240
gtaaaatttt	acgcgcacaa	acggaaaaat	tctcgctcgt	gaatctcaga	aaaccgaacc	300
gcattccggc	caattccgga	accaaattcg	tgaggaatct	gctacaacgt	ctgttcgacg	360
tatgcttaag	gcccacgag	gtcaagccct	catgaaagtc	agaaacaact	caatcggatg	420
atcagtaaga	cgcgctgctt	gtagaacgta	ccttcggtag	tattcgacga	tggttctgtg	480
gcggacgatg	cgctaccgag	ggttagccaa	gacacatacc	cggaatatcc	ttgaagctag	540
gcctacaate	tcaagcgtat	gccggggcct	cttgtgcttc	aaggcgcaaa	taggcgtaaa	600
acgcgcgcac	ctcgagggca	attgccctcg	aggtgcggaa	aggggactaa	tccccagct	660
gcaaaaacaga	cgagaatggt	caaaaaaac	cgggaacaag	cgagcagaaa	gaacagcctc	720
tttgtgcaat	ggtctatctt	gggattgata	gatgaggata	ttccccttat	cgtccttggtg	780
ctcctattat	ttttagttac	aggacaaatg	tagtgctttg	tgccggcctt	ggtggtctca	840
gaatttgaga	aattcaagag	cagattccaa	tctcaaatgc	aactttttatg	aataaccgga	900
aataatacag	ctcaatccag	atcggccata	ttatcttcca	ggtagaatcg	ggaaaaatca	960
gataggattc	tgctcctgac	ttcggagtct	ttcccgggcc	tttttcattt	cctcgcggta	1020
ttgtttgcgg	ctttttccat	ctctcggcgg	agcttttccc	gctccttgcg	ccattcttat	1080
tttgcttttt	ctgagccttc	atatactctt	ggtagtattt	ctcctttgct	tgcgatattt	1140

tcgcatagcc tccgagttgt caggcttcaa aacattcact ccttgcggaataaacgcgaa 1200
 cggccg 1206

(2) INFORMATION FOR SEQ ID NO:866

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1142 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1142
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:866

```

ttccaatggt cttcgtcccg catcatcatt gtcgagatag cattctatct gcgataaacg      60
cccaaacacta tcttgcggtg tgggtcggga ctatgaagga ctttccgata gagactgaat      120
acatgactaa cggttcatat aacgacttaa aatatattga acgctgtttt gaatgtgtaa      180
atgcctcaaa cctgatcgac agaaatgtcg ttcgacaaat gaattacctt tgttgggtag      240
ttatagagaa aaaggcaatg aatccgcccc aaagactgct tgtcattcac cgcgccctgc      300
tccttaccgt atcgaactgc tcaatactct gtcggcagct ttcatacaca tatctacttc      360
gaatttgcat cacctataga acagcgattc gagcaggcga actagccaag cgtgttcact      420
ttcaaagcag tgtacttcct ccgccccaaa aatcccgggg ttgaaaaact ttcgtcccta      480
tgccgcctca tgggttcgag tcttcgtccc gatgtcgttc tctgtagcga attcaatctc      540
tgacactgac cctcactgct gcctctcgcc tgttcagtcg gaaaaccagc tgtatgtctt      600
atgcgatgac aatgaacaaa tggcagaagc agagctgact acgggtcgtgg cctcaaacat      660
cggatgctct cctatgtgga aggcgtattc tatgtgatag ccgtgcctgt gatctctatg      720
cctctcgctt cgctagctgg ataggagcgc attcgtttac ctccccatcg tacaggacga      780
aaagtgtctg gccccctcta tgaacaggtc ttccggtatag gccgggacct qcgcatgctc      840
tcattcctgc tgggtgctcg atgatactgt atgtaggacg ctgtcagagg aaaaaaacct      900
gccggcactg atcgataacc ttccactctt accgatgatg ttcattctcg tattgtcggc      960
gacggccccg tgcagtcagc ctaatgaatc aagtgcgaagc tacaggccat ccggaacgaa    1020
tcatatattga gggaaaaagg aaggagcaga gctttatgcc tactatacgc aggccgatgc    1080
ctcgtattac cgagcatgcg cgaatgtttc gttcggtcgt aaacgaactc tcatagcagg    1140
cg                                     1142

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(2) INFORMATION FOR SEQ ID NO:867

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2567 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature

(B) LOCATION 1...2567

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:867

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cgaaaaattt tacgctcggc attttcaggg acatgaaaca agtttttttcg cgccacttcg      60
catttttcac tcgaccacta tccgcagtc ggcgaaacctc cgactactga ttttgtttcg      120
tttatatata atagagagag actacagcgg ggacgatgca ggagtccggt atgcataacct      180
tacagtagtc cgaacggggc ttgccgtaga tcagctatgt acaagccaaa gtcaaaaaaca      240
aaggacataa gaaaaaacta ctcgtaaga tgaaaacaac gaccttttcc gtagaggcat      300
gatgtgtggc ggttgtgtcg caagtgtaga gaaagcagct ctcggtgtaca aggcgtacaa      360
acggcatttcg cttctctgga ttcccatagt ctacagtggg ttatgctccg gagacaacct      420
caccggaggc aataatgaag gtgtacgcct cgccggattc gagtgtaaag tctgacaagc      480
ccaatcctta aacccgatag tcccctgat atgaaggagc aaaaacgttt ttcccgtagg      540
ggaatgcggt gtgcgggctg tgcgcatagc gtagagcagg ctgcctccag gtagaaggca      600
ttagcgatgc gaacgtccaa ctgcgcgaga atatacttct gtatcggtgg acgaaagggt      660
aacttcggca gaggatctgc gcaaagtatc cgcagcatag gattcgacct gatagtggag      720
gattcggagg cagagaactt cgccggcgcg atgccatgga agcagcagaa ctgagacgga      780
tgaatgcgat acgatcatag cttggtcgtc cgccatcctg ctgatgcttc tgagctaattg      840
ccgcattttcc agatgatgcc ctacctgatg atgctcatag cctgcccgga tacacatggg      900
caggaaggac tttccaccga tcggcactca acaactgcgc caccggcgtat tttcaatgga      960
tacgctggta tcgttgagca cactatctcc tttttttata gcctgatagt cctgctgttt      1020
ttccgcgaag gccggccggg atgaagctcc acctctactt cgatgcttcg gccatgatat      1080
cgcatattgt ctactgggca aactcatgga aaagcgtgcc ggccgaacac ggggcaagcc      1140
attcgtgaac tgatgcgact acagccggcg gaggcattgg ctgtgcgcaac ggacgcgaga      1200
ccgtgatgcc cattgctgcg ctcggtcagg cgacttcggt cggtacgtc cgggcgagca      1260
gatacccggt gacgtatcgt gaccgaaggc agcagctccg tacaagagag catgatcagt      1320
ggcagccctt accgcgagag aaagaagtcg gctctatggt tttctccggc acatcaacgg      1380
ctccgggtgt ctaccggtac agtctactca cgtaggcagc gcacggtact cgggcgcac      1440
atccgcacag tccgcgaggg acaggccagc aagcgcctat ccaacgtctg gctgaccgga      1500
tcgcgggcgt attcgtacca tagtcatcgg gctatccatc cttacctata ttatatggca      1560
actgacggag cagcggatgc ttccggtctc ggactcctct gtgccatata ggtgctgtga      1620
ttgcctgccc gtgcgcactc ggtctggcta cgctacggc tctggtgtag ggatcggacg      1680
ctcggcacga aatggtatcc tcgtacgcaa tgccgagcac tggagcggtt cgctaccatc      1740
gatgccgtgg tcttgataaa gacagcacgc tcaccatagg caagccggaa gtgaccggta      1800
tcgattggtt tgttcggata ccgatgtacc gaaagtacgc cggctgctct actccgccga      1860
gatcttagca cgcattccact tgcagctgcc atttgccgag cctttgccga aacggcagga      1920
cggaggagct gtcggaagtc cagaatttcc ccggtcgtgg atcgaatttt ccttcgaagg      1980
agagatctac agagtgggca accagacctt gtcgaggagc ttggcgcaca gataccgacg      2040
gatataaccg ctctgtcgag gatgcagcca tcctctatct ctcacgtgcc gaaagattat      2100
tgggacgttc tgtgtgaccg acgaactgca acctcaggca gcagagggtc tcgcacgctc      2160
catcgacatg gcattcgcac cattatgctg acgggcgacc gcccacaaaca gcggaagcat      2220
tggtctcgaa gctgggtttg caggattatc gtggggcatg atgccctcgg acaaggccga      2280
ctatatacga atactcaagg acagggacac cacgtagcga tgggtgggca cggcataaac      2340
gactccgagg catcagtagc gcggacgtca gcgtagccat ggggtgatggc agccatatag      2400
catagaagtg gcaggaatca cgctgatgcg ctccgatctg cgctgctgc tgctgctttc      2460
gagctgtcgc gcgccacaag acgtacagtc aaagagaatt cttttgggct atgtgctaca      2520
atctgattgc catcccgaata gccgcgggct gctcttcccc gtgaacg      2567

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(2) INFORMATION FOR SEQ ID NO:868

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 549 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...549

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:868

gcgcgatgct	attttcagtc	gtcagcggtta	ttgggggggaa	cctttccct	ctactacaag	60
gagggtatgc	ctcacgcgct	ggatgaagat	cgactgccct	ccgattgccg	gaggtagata	120
aattcctccc	cacagaaagc	ggtgaacgcc	ccttggaaga	gctaccggct	ggcatacagc	180
cgaaggttat	ccatacaatt	gagcacaatg	cccggatttg	ccggtagcag	tgcttactat	240
ctgcgtatat	ggatccacaa	aacgatactg	cactcgtcag	ctcgatcggc	gaataatatt	300
ggcgtcacgt	cgatctatac	atcggtggta	cggagcacgc	cacggacacc	tgatttatag	360
ccgcttttgg	aacaaatttc	tcttcgacct	tgtatcgat	gcgaagccga	acctttccgc	420
aagctggtga	atcagggaat	gtccaaggac	gcttcaactt	cgtctatcga	atcaagaatn	480
ccaatacatt	gtcagctatg	gactgctcga	gcaatatgag	gtgactccac	ttcatgtagt	540
gtcaatatc						549

(2) INFORMATION FOR SEQ ID NO:869

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1115 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1115

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:869

ggcaacggag	gattttcaca	atacattgag	agcaacctct	tcgataagct	tcgggaggtc	60
aaagaaacac	ctgctccgtt	tacgctgctg	tacgatctct	gcacccgtac	gggttcaaca	120
gggatcagat	acgggaggtg	gccacgtttt	ggacaatcct	cccggagctt	cttttttctc	180
ttcttcgcat	cgtctctacg	tgagagggat	cggtttacag	tacttccctt	atcgccaaag	240
atggagtgcc	ggaactgttc	ggccttaaaa	tcggagattc	tttcctcgat	ctgcggatgg	300
aaagcaactg	agttggcagc	gcggtactcc	tgccgatttg	gactggaggg	tctgcggctt	360
ccgaatacca	agctattgtt	gcctttggca	ttgtagaatc	tttacaggag	gagcttgggg	420
ttcgccgtcc	gcaacgaggg	gtcatattca	tccttacggg	atgaaaggct	gcaagacggt	480
gagccgtttc	ttatcgatcg	tcacgtgcc	cgaagccgga	gggaagaggc	ttggctcctt	540
gccaagggaac	agaagtggta	tggatcatgg	gctatgcggc	tgatcggcat	tcgccatcga	600
tgagctgtcg	gatacggaag	aatatctgct	cttctcttcg	ggctatagag	cttgctcgat	660
ggctttttct	cttgcccggg	agccttctcc	ttcgcatcca	tcaggataaa	ataagcacgg	720
taaaggcgga	gtaggtatag	gaatactgtc	cattgagacg	ttcatacaag	gatttgagtt	780
cgaaatgcga	gcgggatttg	tgaaataggg	gtgtaattcg	gaaacgatac	ctgatctata	840
taggcatcgg	gagccaatcg	tcctttctct	atcaaaaagg	caggtgcctt	tcgatggtag	900
tcggactgag	tttcgcgtcg	gtagcgacct	ctctatgctc	atacctgcc	gtagcaattc	960
gagcgttgtc	tcgtgggtag	ctttttcttt	tccttggttt	ttttctcttt	actctttcga	1020
ttgccggcgc	tggtggcagg	gcttcgtcct	tgggtgaaat	gtcgcgtacc	cattcggcat	1080
cagctcttcc	gtccgaagtt	cctgtctgct	gaggc			1115

(2) INFORMATION FOR SEQ ID NO:870

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 643 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...643
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:870

```

aggtttcctt gtaattggct tgccacatca agagcagaag acatcttggt ccggaagcat      60
tctccttggg tgtacgcatg aagcgttcgg tgtaaaccac tcgtagaac gccagtctgc      120
cacaggagca acggctatcc ccgctttaat gtaccatttc cccgacacaa actcattagt      180
gtggtatagc cgccatgctc ccccccata tgccgatacg agctgcatcc acatagggca      240
gctgtctata gcagtggccg ctgctatctg atcatcgctt tcgaatacac cgagtgcagt      300
taggtacact tgcgccattc ttcgccgcga gcaccgggtgc caccocatcc acacatgccca      360
cgacgtaacc tttcgatgca aggtagtgtt ccaatcgaat gaatagcgat ccaataacctg      420
ctgggagttg ggaccgctat atgtaccatc aggacaggat agtggcgaga gggatcgaaa      480
tcaataggct caccatccag gcattcagtt caagaccgga ttgagttttg atagtggtaa      540
ctccttcggg ttgtaacgat aggctttcag ccgttcacgg agagcaactt atcctccagt      600
gtacgcagct ctttggcacc tttgcttctg aataccgaac cac                          643

```

(2) INFORMATION FOR SEQ ID NO:871

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 637 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...637
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:871

```

ggttgccgag cagaatttgg gacagtttgc actctatctg cgaggcgaat tcccggattc      60
caccgctgc agttcaaccg tgtgaccggc cagccgctgt tatgagttag atggtagaag      120
tattcacgca aatgatggag gagaaatatt atgtcagaaa cgactaagtg ccccatgtac      180
gaggcaaaag actatagagc gatcagtatg tgcgttggtg tccgggttgc ggcgaccacg      240
ctgtgtagta accctccaga aggcaatggc cgaaataggg atccctcccc atcaacggcg      300
gtaatgtccg gtatcggatg ttcttcccgt ttgccatact atagaacacc tatggcttcc      360
acaccattca cggtcgtggt gcagccatcg cgccggcgtg aagacagcca atccggagct      420
ttcgtatgg ctcgcatccg ggatggtgac agcttggtta tcggcgcaa ccacttcatt      480
catgccgtgc caggaatatc gatatcaatg cagttctctt caataaccgt atctatggtt      540
gaccaaaggc caatactctc ctacctcagc tcgcggattc gtatccaaag ttctccctac      600
ggtacggtag aagatccgtt tatccccgca gaactgg                          637

```

(2) INFORMATION FOR SEQ ID NO:872

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1042 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1042

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:872

atcggtcaatg	gccgggtgaa	atggccgatg	ccgactatgg	ctacgtaggc	cgggtccggg	60
acgaatcgat	ctgtataacc	agaagatatg	tggtcgtctg	gtattcctca	ggagcaggcc	120
gtacaacagc	ttatcgaact	catcaaaaaa	acggagactg	gaaagagcgt	tagtttttcg	180
gaaggactat	ttttctagtt	gatcactttc	ctctcagaga	cccaagcaat	gaaaatcaaa	240
attataatcg	ctcgcatcat	cccttgccga	catatgcgac	ttcggcatct	gccgtatgga	300
tctgcgtgca	tccatcgaag	agcctatcac	gttggttgcca	ctcaacgtcg	tctcattcca	360
acaggcctct	tcatcgaact	cccggtaggc	tagaagcaca	gatccgcccc	cgaagcggac	420
tggctctccg	acacgggtatt	agctggtcaa	tagcccaggg	actatcgatg	ccgattatcg	480
cggtgagata	ggattattat	gatcaatctc	tcgaatactc	cttttaccat	agcagatggg	540
aacggatttg	ccagcttggt	atcgccagac	atgaacaggc	cgaatggggc	ttacagacga	600
attggccgat	acggaacgag	gtgcaggcgg	atttggtata	cgggcaaaga	ataattttca	660
atctcccttc	aactaccaca	gatgcgatcc	attctatcat	tctcctgctg	tttcttttag	720
ttattttctcc	tgtagcggaa	gtatatccat	tacagacagt	acagcatcta	agttcgaccg	780
atattctatg	aagggtgtccg	gcagcgagaa	caggagaatt	atgctgcagc	tttgacatct	840
ttcgctattg	ccatcggttg	aatcccaacg	atgctggctct	ggatcggagt	tgggaaaact	900
ggatatttgc	cattgggcgt	caggaggaag	gaccccggtg	tttggaaaca	agcctatcgg	960
ctctatccga	ccaccaagga	ctatggcaat	atattaaggt	gctgggtatg	aacgccaggg	1020
acgagctgag	atgctgcagg	ct				1042

(2) INFORMATION FOR SEQ ID NO:873

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 304 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...304

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:873

tcggttcgttc	aagggtcttc	ccaaaaataa	acagttgatc	aagtatctgg	cgaaccgggc	60
atcaagagct	ccatgctgaa	gaccgaagaa	gcatacatgc	tgaaaacatg	aggaatatgc	120
atttggtcac	agacgaattg	tatttcacat	agatgaaaag	cgtaatagcg	tanagcttac	180
cgagaaaggt	atcgacttct	gacgtcccgt	acagatgacc	cgaaattctt	cgtcttgccct	240
gatatgcagc	tgagttatcc	gctttggaca	atatggaatc	cgatgcataa	aaacttgcca	300
agcc						304

(2) INFORMATION FOR SEQ ID NO:874

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1024 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1024

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:874

gacaaggaca	cgaagcgctt	ctggttggtt	ccaagagggc	cgaagccaat	cgggacttgt	60
gcaagcaatt	ctattataag	acgacggcat	cgttcctacg	tgcactggta	tggggacggt	120
tcgactaccc	gacgagggaac	cattaccgca	atataggacg	cgacctgaaa	gaccgcctgc	180
aaatggcggg	attccccccg	atggagatat	tggcaaaccg	gccgtaacgc	attatcagggt	240
cttgagaaac	tggcatacgt	cagctggata	gaatgccgtc	tggagacagg	gcgtcccatc	300
agatcagggc	acacatgaag	cacataggcc	atacgttggt	tgcgacgagc	gttatggcgg	360
cgatcaaata	ctgagaggaa	acaatacggc	cattaccggc	gattcgtgca	gaactgtttg	420
gctatctgtc	cacgacaggc	ttgcatgcc	agacattagg	ctttcgccat	cctgtcacgg	480
gagtgagagt	cagttcgact	ccgatatacc	tgccgatctt	accactttgc	ttgagcgttg	540
cgtacgttta	tcgcctgcat	atctgcagga	caggactata	tctgaaccat	tcggctgata	600
ctcatataaa	tagtacaata	ctttccccta	catattaata	aacagaacga	tgaaaaaacc	660
aattgtggct	gtcattgcag	gcggttttcg	ggcgaacatt	cggtttcgct	caaaagtgtc	720
gccggcattc	tgtccggctg	ggaagcgagc	ctttctccac	ctttcttggt	ctgatcgaac	780
gtgacgctgg	tcggtaagag	tatcggagca	gagagaggtt	ccactggata	agacgatttc	840
agctttgatc	tcgatggcga	acgaatacgg	tttgactatg	ctatatcacc	atacatggaa	900
ctccgggaga	gaacggctcg	cttcagggtg	actcgacatg	atcggcatcc	catacaatac	960
gggtgacncc	ctcgtcgaat	cctgactttc	aacaaatatg	tgtgcaatcg	ttttctctcc	1020
ggct						1024

(2) INFORMATION FOR SEQ ID NO:875

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1090 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1090

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:875

agctccgatac	cgatttagtgt	cagaagccat	acaccgcctg	ctttccatca	agccataaacg	60
gaagtgaatt	atgcacacga	tcccaaggcc	gaatttttag	tccagcgata	gatcccgaga	120
aaataacggt	gggcttcatt	ctcgatctat	agatcgttat	gggagcgaac	acttcaagggt	180
agacaataag	gtccgatcgc	tcccgaatgg	caagcgatag	aggattcccg	tcagagcctg	240
cacatccccc	tgcggacacg	ctactaaaga	at ttgttaga	gcttattctc	tgagactcag	300
agtattctga	ttactcagag	tactcggatt	gctcggactc	gaaagagctg	agatccggcc	360
gtagtcggct	tgtatttggt	gacgaagagc	ttcaaactat	cgaacttcat	atcctctctg	420
ataaaggata	caaaactccac	tgtatctgag	atccgtagat	agttttatca	aattcgaaga	480
gattgacttc	atcgttcgct	ggtcaccggt	gttcaacgtc	ggcctgcgac	ctatatacac	540
atgccattgt	atcgttcgcc	acttacaatg	gctctgacgg	catagaccca	tcgcagggga	600
tcaacttggt	actgtcgctt	acagtcagat	tggccgtggg	aatcccaatt	cgcgcccaat	660
cctaaaacca	tgtctccact	ttcccgcgat	atatagtcat	accccaatag	ctgattggcc	720
aaagcaagat	tattgctatc	agggcttggc	gtacggcact	ggagctggcc	ggcactccac	780
cgattcagcc	tgcgaagctt	tctttaccgt	tatacccaat	ggagtagcta	tcttttgtat	840
tcttccaaac	cggatatgcg	tccatgtccg	aatcgggtgat	caagccaatg	agcaaggctt	900
ttacatggag	tcgtttgtgc	aggatggttg	tatgaaagtg	tcggccgtca	ttgctactaa	960
ttcgggtgta	aaaggcagca	cactgtatag	tctactcctt	ccgcttcaag	tctgaggagt	1020
ttttcgctt	tgtagtcagc	ttctggtagg	gtgttcccg	gcgaaccact	gatatggggg	1080
gacgtcgaag						1090

(2) INFORMATION FOR SEQ ID NO:876

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1136 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1136

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:876

nengttgcat	gcatttcgac	tcttttaggat	ccnnggcccc	tctgcaaaaa	ctggcgcggc	60
ggtagagcag	caggcggcaa	tatcatcccc	tcttccacgg	tgcagccaaa	gcagtaggca	120
aggtgatccc	cgaactgaac	ggcaaacgac	gggtatgtca	ttccgtgtgc	cgacactgga	180
cgtatcggta	gtagactgac	atgccagttg	gcgaaaaccg	ctaaatacga	agatatttgt	240
gctgcatgaa	gaaagcttcg	gaaggcgaac	tcaaaggcat	tttgggctac	acggcgaaga	300
agtggtttcc	tccgacttca	tcggcgaaac	ccgtacttcc	gtatcgatgc	caaggccggt	360
atcgcactta	cggatacttt	tgtgaagatc	gttcatggta	cgacaacgaa	atcggatact	420
ccaacaaagt	actcgatctc	acgcctacat	ggctaaggta	aacgcataag	acttctacga	480
gateccgatcg	atcttttcatt	actccctcac	ggggctgtac	cgaagggaact	atccgggtaa	540
gccccgtggt	cttttccgga	tattatcgac	taaccaattc	ccctccaaat	catcagatag	600
ccgcacgtca	gctctcttcg	gactgtctat	ttcgagctcc	tgactgcgat	attcgccccg	660
actcataccg	gtgtgctgct	tgaaatcttg	ccgaaaaacg	actgggtgga	gaagttcagc	720
tcatagccga	tctccggacc	gtcttatccg	tatagcgag	caaggacttg	gcctgctgga	780
tgataagctg	ttgatgactt	tggaggcaga	ctgtcccatg	acggctctta	tcgcagtgcc	840
aaatgtttgg	agctgaggca	cagcctgtct	gcatagaact	tgccgtatgc	tgctctttgt	900
gatgctcgga	gacgaggagc	agaaagtgcg	gcaaatagtc	tccgacctgg	tgtgcttgca	960
gtccttctcg	acctcgtcgg	aatcatatcg	tcnagaaaga	gaaagagaga	gctgatcnga	1020
tagatgacat	ttcttctctga	tgacgcccc	cgttttgcag	ggcgttgccg	atgagatcaa	1080
cgttgccgtc	agaaaatctt	tctccatgcg	ttccggacgg	aacggttggt	gctgtg	1136

(2) INFORMATION FOR SEQ ID NO:877

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3945 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3945

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:877

ccgacaccca	gtagtaagaa	ttgacgttgg	tcatgtcgaa	cagattgaag	aggtcagccc	60
ctatgtaggc	cccttttact	cccattagcc	atttgccttg	ccggcaaagg	agtcacccgg	120
gtcgcagccat	ttgtacatta	ccccagctcg	acacgcttat	aggccggtgc	ggtaaaggcc	180
ggcgagctaa	gcccttgctc	ggattgagct	ggggcaatcc	tccgcttagt	gcagcccgca	240
gggtgctgtg	atgcgtttat	tgcccggcac	gtactcctga	aggaagaagg	agaattgtaa	300
gtgggtgcgt	tcatcagtgg	taaagaaccg	tagccatcca	gttctgacgg	gcttttataa	360
tggaaagccgt	cagccacgaa	tccactccgg	gtccagttcg	ccgaagagct	tgagatcgat	420
acccgcagca	taacccgaac	catgttttct	cccagatagc	ggatcttcac	gttctctatt	480
atatacgggt	gatgttgaac	aggctcttgt	agtaagcctc	tgccgtaaac	ttgtattttg	540
ccccccatt	tcgaaggat	agtctgtctc	tgcgagaatg	tgaaaagccc	ctgagagcgg	600
atcttctcgt	tgaggacaac	cacgttattg	ccttcggatc	cttatgcgtc	tgcccttagct	660
ctttgtaaaa	cggtgcctga	taataagtcc	ggcggtcgca	cgcagtacca	aagccggggt	720
gctttcggga	gaatacccac	gctgatacgt	gggctgacga	gcaactcctt	gttgaagctc	780
cacccgaagc	tctgataccc	ggaatgagag	aaaatgtacc	tcctcccatg	ctgagttgaa	840
tcgatcctgt	acgaatgccg	acaagcgctg	tccctccttc	tggtatcggc	atataggtta	900
ttgtacatca	gcaatcgggt	ctccgagtga	gtaggttgta	tcctaccgaa	tcctccggtt	960
cccattcgcgt	gatatggctg	ctattttctc	catctgtgct	gatacgccgg	cttgacggcg	1020
atgcttctct	tcagcttcat	ctccctctct	taacccatgt	tcagcacgcg	gtagctcaca	1080
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tgctgcctcg	cacgagttca	tgctgaaggc	accgaagtag	gtcaggaaac	gatcttggtc	1320
ctgccgtcga	aaaagatctt	caactttttg	gcacgcgtca	gtgtaccgaa	gccgtctcac	1380
gggtctgagg	gacaaacttg	tagcgagttt	gcgaaatatt	gcgaggaaac	taaccgacag	1440
cttggggctg	aaacggtacg	tcatgaatgt	tgtccgtccg	catagatcgg	atcgtattcg	1500
gctttcgtgt	ccgtagtgcc	aagagcgatt	tggcactcct	gtagcgtaca	cccgtgattt	1560
ggctgaagct	ccggcactgc	tgccatagta	ggcactcgat	tgtagcatcc	cgaggagacc	1620
gctccttctc	tcttctcgcg	ttgcttgtag	cgaatatcca	gtacggggac	atcttgctgc	1680
catagtccgg	cgtgaaccct	ccggcgggag	actgtcggat	tgtgtcagat	ccggattgac	1740
gaagctcaga	ccttctctgt	gtgcgagcga	accagcagcg	ggcgataaac	ctccactccg	1800
tttacataga	ccaattctca	tcgtagcttc	ctccgcgaac	cgagtattgc	gagcttagtt	1860
catgttctgc	gttactcctg	cgtagggtact	gatgagcgat	tcacccctc	cgtaggccct	1920
gcattgacac	gaaggtctcg	ggtattgacg	cgctccatcg	gttgagctcg	cgttttgtgg	1980
cctgtaccgt	cacgctcgaa	agctccatcc	ggcctctgcc	aaacgaacat	tcagccgagt	2040
gtccttggtc	agagacggaa	gctgcgactt	accccttggt	accccatgga	gctgaactcg	2100
atcgtgagct	gtccgtcgtg	gccttcatcc	gaaactcgta	gtatcctttc	agattctcga	2160
tgcgctgtgc	cccgtaccac	gcactttgac	tccggcgaa	gggatggctt	ttccccacgg	2220
tcgagcacat	agccccgata	cctgacgcct	tgtgcatagc	tgccctgagag	catagcaggc	2280
agcatagcag	aatgaatgac	aattgtatat	accgttgagc	tttatatact	tggtcttctg	2340
ggnaatagct	ctttcatgat	ctattaacgg	tatttgaggg	agaaaatcgt	ttgtcccttt	2400
cctccttttc	ccggcttaat	gagccaaaat	ccaatggaac	aaaagtaata	ctaaagagat	2460
tcgaaaacaa	ccatccctaa	aaaacatcag	tcgtatgtgc	atgatgctac	aagaaaaagg	2520
cttgataaaag	aagtttttgg	atcagataag	aagccgtcga	aagcaatgtg	tgtccatacc	2580
gacgattttcg	ccaagcatgt	tcaggtgcag	gattctctgc	aaatacgaga	atggcaaaaag	2640
catcagccaa	aggcaaatag	aaaaatctct	gtgtgtgtggg	gggatgtgaa	gaaagagaag	2700
acgaatcgac	tttgggggaat	tacaagacct	gtaatttttag	atgcccttta	tcgctttcga	2760
agttgagcgg	aagacggggac	tcgaacccgc	gacctaacct	tggaagggtt	atgctctacc	2820
aactgagcta	cttccgcagt	cttcccgaaa	tggaaacttcg	gtagaaaaag	aaaacgaaac	2880

catgtacccg	ggcgggactt	gaaccgcac	agccgataat	ggccaaagga	ttttaagtcc	2940
tcgtgtctac	cattccacca	tccgggccct	tgatttcaat	aagagcggag	acggggctca	3000
aaccgcgac	cctcagcttg	gaaggtgat	gctctatcac	tgagctactt	ccgcgacctt	3060
aacgcttggt	tttacaaaag	tgaagagggg	cagtgatgga	ttcgaaccac	cgaaggcgta	3120
agccagctga	gttacatcag	ccccatttgg	ccactctggt	aactgccccat	tgttcttttg	3180
cgattcaaaag	gtagaaacaa	aatccaatta	tacaacagtt	cgctcggcaa	ttttcttgcc	3240
atctctttac	gaaccggaaa	aacatcatcc	atggggccaa	aagtgtgggt	cgagaatttt	3300
ttcatttttg	ttcgggaagt	aaaaaattct	cggccaaaac	gagaaaaaac	tcgttcgact	3360
ttttccaatt	ttacgagccg	catcggagag	actcgggtgc	gtaaattttc	aaccgatggg	3420
ttgtatcgat	gaacaaaatc	agaatcattt	gcccattctt	cggtctgatg	ggattatgct	3480
ggagagagga	caatcgttag	ctttgcagtc	caatcgaaac	agaccttaat	gatacgcac	3540
atacaaccga	tcttgcgaaag	cgagcgaaag	cgcaaattgg	acgcgaatac	ttcattcttc	3600
accgcaagtt	gtcggactgc	ttttctcgat	caaattgggt	ttaccagcga	aggagacaa	3660
ttctcatggc	tggtctatcc	ggtcatggag	catcgggtgc	tcattatgcg	ccggtgaag	3720
gatgggatat	gtacatgcaa	gagaacaaac	gaaccaatct	gcgactggcc	atcccaagct	3780
gcacgggatg	atcatacgtc	ccggagagac	cttctccgtc	tgctcatgt	cggtcgccg	3840
actgctcgca	aggggtacct	cgaaggtttg	gattgagtc	ggggaagatc	ggcaaaggag	3900
tggggaaggcg	gtctctgcc	cttggaacc	tgctcttttg	gatgt		3945

(2) INFORMATION FOR SEQ ID NO:878

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 469 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...469

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:878

gtttgcagtg	ttaaagtaga	acctacagat	aggttttctg	ttgtttgtcac	taaaaggacg	60
ctaaagtaag	actgagtgtc	tcttgaggca	atacggtcac	attgatatat	ttccggagaa	120
ttccttttac	aatcatatat	gcttccactc	tgcttcgggc	gttacaacaa	gagggttcatt	180
agaatcatct	tgctctgtga	ttgctctctc	ctcgcagcga	cttctttact	tttatccatt	240
accgnttaaa	tcgagcagta	atcaaatacat	taataacaga	tttgaaagac	ttcttgtaag	300
atccttgaat	tgttcaaaaa	tctttgctgt	aataattccg	tcaaaacttg	gtttgcgagc	360
attcttacca	actgntcaga	gggctcatte	atttctgcaa	gtatcaaaat	ctttcaacte	420
tttcatatac	cttaaggtca	cagccagtac	cttagaatct	tatcaacca		469

(2) INFORMATION FOR SEQ ID NO:879

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1189 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...1189

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:879

```

actggcgacg cagaaattcc acggagtcgt ccgtgnagcc attatcgggt acgataagac      60
gagccgattg tcgcggtgta tgtgctataa gagagggaga actctccag catcttacgt      120
ccgttccagt tgagaatgat gactgcattg tcatagtgtg cgggtattat gcaatcgggg      180
acgtttccag cggcggggct ccaaagccat tgcgacggat cgcgacggat ggtggtctcc      240
atcagcggac atattcttcc gtaatgcttc cttcggggct gtcacctga ggatgtgcaa      300
gagcttgatg gtaccggtga agacatcgtg ccccgttttc tcccatccat gtagactacc      360
ggcagagaga acttacggcc gagcttctcc gtccattgaa gaaagccgtt tctctgccga      420
agaaggtagt ccagtatgag cggcataggc cggactttgg tcggcgatga agatgactag      480
tggagtctct tcggaatagg attgcgaacg agtcggagca gttcacgtgg cacgtcgtgt      540
tggctatacc acgcgaaccg aatcgctccc gtatgcgatg catgagccgt cggagaaggt      600
acttttcaac gggcgaaaga tctgatagat ctgtaggcca aatctttgat gatggcctga      660
ctgccggaaa agtactccca gttgccaaat gccccatcat caggagaatg gcagggtgcc      720
cttcggctcg taagcgatca ggacatcgag attttcgaat gagatgtggc ggcggagttg      780
cgccgtgaat aagtcagaag cttgaaggaa ctcaagattt gatacgtgaa atttagtaaa      840
atcgacgttc gatccggcgt atttcttgta aagatttctc gggaaaacagc gagtcagatt      900
gtcacgtacc accttctctc gatagcgaac gcggtatgca gcagccctgc caggatacga      960
ctctgcaacc gcaccatcca agcggtagca ctgcctgcat atacgtcagg cctaacagca     1020
aataatagga agggaaagtg tcgctttcat gggaatatgg tatcggtctg ctgcacattt     1080
ctccgcttgg atcgggtttg cccaatacga tctcttccac tttaccaccc gagtctgcgg     1140
catagggagc cgctcgcgga tgtagtctnc gtaaaacctg catcagacc     1189

```

(2) INFORMATION FOR SEQ ID NO:880

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 604 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...604

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:880

```

cgcaaaagaa attctcgga cagtaggtgg ctgccccgat attcttttgt tccaaaattt      60
tcctgttatg cgttccataa aacgtggctc gagaaaattt cgttttggtt cgggaagaaa     120
ataattctcg cgccaaagcg aaaaaagtc gcgcgtgttt tccgaaaaac gtggccccga     180
attttcgatg attccgttcg taaaagagga agtgtcaaaa ttacgttttag agtaaaggat     240
actatatttg tataggaaaa ccgctaccaa atggacaaaa tcatctact tgatgcggtt     300
tttcccttat gattaagggt gcatttgtgt ctttttgata gttgaaaatc cttttttcgg     360
attttgacac agcccccttg tatatccgag gacgaagaaa cccgtactct ttagttggtc     420
ttcatcaggc gttccagacg ggcagttgat agtcgtagaa cgagcggtcg gcagcgttgc     480
ccgtggcctt cgattgcgat agatggtctg cacgcgcttg agttgttgca gtaggagggg     540
caatcacttc attcggggcc tgcttgagga aggccgtaag acggaagagg aatcggctcc     600
gtcc                                     604

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(2) INFORMATION FOR SEQ ID NO:881

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1341 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1341
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:881

```

ccgatttttt caaatctccc gagactgaat attttcttac atttgtcgcc gatgaagctc      60
tctgtcggaa gttggatgtc gctgccaaaga gagccgatgc ttgaatagaa ctacatggat      120
aatagactat aacagaacat gtgcaccaac acattttatac ccccgatctt tccggccgat      180
cctttcgcgc ccataactac caccgcatct cgatatttgg acaaacagca tatatcccta      240
tgacgataag taggaataac tcctcttata ctctccaaa ggcataaggc accccacggt      300
tcggccacga atcgtgcggg tgcctctttt atttcagctt ccgaagggcc tttttcggtc      360
ttcgatttat atacaaatga gtttcgatct attataaatt gaaaatgatt tatatacaaa      420
tcgaaaacga tctatatatt ttcgtaaaaca gtttgtatat agatcgttat cttgtctccc      480
ataaaccata tttgacctga aaaagttcgt ttcttcatat ttctgacatc aaaatccgtc      540
cctttcaggt gcttattttag aatcattcca aattccgctt cgttgttgaa actaaaaaat      600
tttcaaacgc gatcgctctg acaggctgcc ccggggcgac gcattaaatc ggttttgctg      660
cttcattcga gcgagtttct tctctgatac gagggattga ggacttcata ttggccttta      720
agggggaaac gatatttgcc ggcggtaact gacgtgtact aaatggctgt ctgacacaca      780
taaataaatg aacaaaagtg cctgcttatt gtgcaaaggc cccattaatt cgtcttgctt      840
gataattgga tgtagcaatc atgagcttta gatgtacgtt agggctgaaa tgcgattgcc      900
ctgtggaata tgcattctgc tatacttgaa agtggttatt ttttatcttt gtgcggactt      960
tgttcagagc tgcctttttc tattgggatac ggtgggtgat attaaaaggg aatcgggtga     1020
aaatcccgac agtcccgctg ctgtgaacct tgttaagctt tcggcattta tatccacttc     1080
cgttctgtgc ggatgggaag gagtccgaaa gtatggggtg aagccagaga cctgcaaagt     1140
ctttgtctgc ggcttcgagg aaaagccggg agagaagcac ttgtgggtcaa tccgacttta     1200
ctgccacaag gatccgnttc tttcctttca atccccgag gaaaattttg tttccgacgc     1260
agcggaaacg atccattctt ttgctaggaa ttggagtgtt tttgngagcg gacccttatg     1320
gtctgtcttg gcgggatgag c

```

(2) INFORMATION FOR SEQ ID NO:882

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 619 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...619
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:882

cttgtaatgt	tactgttgcc	ataactgata	atgctgttag	aaatatttta	gactcattgt	60
aataatatct	ttattcctaa	aacaaggagt	tcgtcttatg	ttcatcgta	acgaatcatg	120
ctcaacccgt	cgcgcatcgg	aactatcagt	tctccacacg	ttcatccagc	aagaccattt	180
cgttgaagcg	aaggatccct	gtgtctggct	atcggtcggg	agaggctcgg	ccaccacttt	240
accgtccaaa	gcgtattatc	ggccaggatg	agtgtccggg	gaggcagggtg	gtcttgatca	300
tttcatagta	aagggtgtat	tgtctcttgt	ctgcatccat	ataatcagat	cgaagcgttc	360
gttcttgacc	aagtccggta	gtagatccaa	ggctcccaat	atgtaatctg	atcttaccct	420
caaaatccga	tgcctccaga	tgcggcggat	gaagtccctc	atctcgctcg	cgcgctccag	480
tgtgtggagc	gtccgtccgg	agtcaatccc	ctctgccaa	cagagagagg	catanccgga	540
taggtgccga	tctccaagat	cggcggtggc	ctcatcagat	gagagatctc	gacaaaaaac	600
gtccctgcag	gtgtcccg					619

(2) INFORMATION FOR SEQ ID NO:883

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 642 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:883

gagctcgcca	aaaatttgta	gaacctat	cttcatcaag	gtactctatg	gatttatcaa	60
ccaattcgct	ttgaacatct	ctctcaagcg	atccgcatac	ggctcgcttc	tgtggagaat	120
actgtctgat	tagcatatac	tttgtttgca	attgaactaa	attagctgca	gaatacatcc	180
ctttttccaa	tagttctctg	tttgatttaa	tgcatacttt	ggctctaatt	tttgtgatgg	240
gccgaatttt	gataataagg	ggctggaaat	aaatttccct	cgcgcatagg	cctgttatat	300
ataagtctcc	aatctttctc	gaaaaccgac	acaaacgacc	gcactttggg	tcaatcgatc	360
aataggacaa	agatcagaaa	tcattatata	tgactgatat	tcacactcat	ttctccaatc	420
tgtgtcaata	tggcaacccc	attgctcgat	cattatccca	agcgcttctc	cctaatactaa	480
gaagcaattg	gcttcttttt	caattttatc	tgttcagtat	acctactatg	ataaagtata	540
cttcttcttc	atgaccgttc	tccaaaaaac	attgatagta	tgcttggtgc	tatcgacagt	600
atttgcgaaa	ataatcgcac	tacctctatc	aaggcatatg	gt		642

(2) INFORMATION FOR SEQ ID NO:884

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1473 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...1473

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:884

```

agcaggcggtt gcatgagccg cacacttgga tattgatcat ctgcgcgcgac gctccttacg      60
atccttgtcc  tccggcatga aggggttgcg atccacacgc gcggtcatcg gaagagactc      120
ctgccggcta  cgtagtttga agggcagtgga ttgaactttt cgtcatgggt gtggaaggta      180
acggcagcct  tgaagcgcta ttgataagcc gctccgtctg aatacgcgaa acgtctatat      240
cgctgtgata  atcctttcct catagcggaa tcgctccatc tctccacga tctcccgcc      300
tcggcaataa  aggctttgcc ggtgaagacg atatecgtgg agcttcgccg tatccgctgc      360
tggcatatac  ataagcacag ataccctgtg aaaaaggccg ctgataagcg atctcaagta      420
agaatgtttg  cctgcatttt cttgctggag gagaggttga agatcacctc tgctccataa      480
aggcagagac  tgtacccgga gtgaaaggcg tccacatatc ctcaaaaatc tctatgccgc      540
accacgggtg  ccacatttga atatgaggtt ccgcccgatg ggtacgcttg ctgaccgata      600
ctgatggtcg  agtactgcag ggtatgagcc ggtgagacca gcgagcctcc tgaaattcgc      660
gatagttcgg  caggttaagt ttgggggtgg accgagtatc ttccctgct ggaataccac      720
agccgagttg  aacagttttc ttccacgcgc agcggcatcc ccactatcac catgacagtc      780
gtatggcagt  ttgctccacc aatcggcaca aggcttcgtt ggctcgttct tgtggaaagg      840
ctggaaaaac  aagtcgcgcg atgaatagcc cgttatgctc aatcggggaa cgtcattatc      900
tctacacctt  tggcatcggc ctgctgtacc agcggtcgat ccgctcgata ttgtattcgc      960
aatcggccac  tttcacaaaa gaacagctgc tgcgaccttc ataaatccgt atctcatagg      1020
gaactgtaat  tatgaggatt gtggttttta ttctaattcc gtacaaatat atgctttatc      1080
tcagtccttc  tccgaaaaag agccaaaagag aggaactgcc gagatcactt tggaaagagg      1140
tgcttgccac  attttgggga ggggagagca aaggatgtac atcatgatgg catgattctc      1200
cacaaacggc  tcggtatatt cgctgcacgc gcacgagtga cgatacgta cagcttattg      1260
tgctcgctat  agccccccaa ctctgatgct ctatgcggtg atccgtctcc tcgatgcgat      1320
aacatccctc  tgctccgtat cggagctgat ccgtccgttc aggtgcgtat cgccagccag      1380
agttccagcc  tgtaggtgtg cggcgtattg ttgctgacct gaggtcgata tagttatacg      1440
aaagcgtagc  tctgtctccg aacggaatac gcg                                1473

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(2) INFORMATION FOR SEQ ID NO:885

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 647 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...647

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:885

```

acatgacgta gtcaatatcc tccggettca atccagcacc ttcgatagct ttgtcataac      60
cagcttggct cccaaccctg caggatgact tgccgtcagt gatatgcac ggctgaaaga      120
cctgttccca ccaattcggc atagatggag caccgcgttt aagagcatgt tccagttctt      180
cgagaactat acatgcgctc cttcacccat tacaaaaccg tcacgactgg cactgaaggg      240
gcggcggcct cttgtggagc atcgttgcca gtggagagag cattcattgc attgaacctc      300
ccactccggc agcgcaaatc gacgcctcag agcctcctgc aatattacat tggctttgcc      360
taagcggatc agatggcaag catcgatcag agattggtag aggaagcgca tgcggatgcg      420
atggaatagt taggaccatg gagccgtatt tgatcgagat ctggccggct gcaatatcgg      480
agatcatctt gggatgaaaa acggattgaa acgaggcccg ttctccggat tgtagtcgcc      540
acttcacttt cgaaagtcgt cagaccaccg attccggcag aaacgatcct cccacacgat      600
tcttgtccaa ttggtccaaa tcgaggccgg agtctttaca ctctcat                                647

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(2) INFORMATION FOR SEQ ID NO:886

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1158 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1158

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:886

tgccacaacg	accacggcca	acgccatggg	gccgagtttc	gtagaccggg	aagcggcgag	60
atcatttgtg	cagatgtgat	ctggtatcac	aatgtatttc	tctcgttcac	aactggcggt	120
tcttacagac	gggagccgtg	gatccgctgt	tcgcaaggct	gtattcgacg	atgaagtgat	180
gcgcgaatcg	ctccgcatgt	ggcagctcac	gagatcggtc	acaccatcgg	cctgatgcac	240
aacatgggtgc	cagctactcg	ttcaccatcg	agaacctgcy	cgatccgcag	ttcaccaaaa	300
atacgggtacc	acaccgagta	tcattggacta	tgcccgcaac	aactttgtgg	cgcagcccg	360
cgacttggag	cgtgggtgtac	gcctgacgcc	tcattcatcg	tgtgtatgac	attcatgcca	420
tcaactggggc	ttatcgtctc	ggcccggagc	caaaacggct	gaagaggaaa	agccgacact	480
gaacgcttgg	tcgcccagaa	gaaagacgat	cccattgtta	ccttcggagc	acagcagttc	540
cctataccat	cgacccccacg	gatcagaccg	aggatctcag	taacgatcct	tccgtgccgg	600
cgacatgtcc	atcagcaacc	tgaagattat	cgccaagaca	tggaacaaatg	gctcctcgaa	660
aaggaagctc	gctacgatga	tctgcggaca	tgcacggaca	gctcatgtcc	caatactacc	720
gccatgtgag	ccacacatgc	cctatatcgg	aggagtggaa	cacttcgaaa	tccgccagg	780
cgaaagaata	cgctttcccg	tcgcttcac	acaaaagaca	agcaacgcaa	ggcatgaatt	840
ggctcctcaa	tcaggctcgc	acataccgcc	agtggctggc	cgaccggctt	tcctcaacaa	900
ggtagagcag	aactctggga	tgaccgacct	ctgggcaagg	ccatgggtggc	ggctctcttc	960
aacccccggt	gcataggacg	atatacgaag	cagagcagtc	cggacaaccg	ggtgtgtaca	1020
agctcacggt	tacgccaacg	agctgatcga	tgccatcttc	aacgtgaagg	gcaatctgcc	1080
gatgccgata	gttctattca	gaacctggcc	atcgacctca	tgtcggcata	gtggtcttct	1140
tccacgggaa	ggcaagaa					1158

(2) INFORMATION FOR SEQ ID NO:887

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 651 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...651

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:887

tagaggatcc	ccatcaagtt	tggctccttg	ttcgacgaag	acactaatca	gataataaca	60
gatagatatg	gaagacgaat	tgctgaactt	taattatagg	attccgggtt	gcccgttatt	120
atcaaggtaa	tcggagtcgg	cggtggtgtg	gcaatgctgt	caaaaacatg	taccacggca	180
aggtgcggga	tgtatcttcc	tcctgtgtaa	taccgatgtg	caggctctcg	accgaagcga	240
ggtactgatc	ggctggtact	cggccgtgag	gtgaccaacg	gtctgggtgc	cggtgccgtc	300
cggaagtggc	acgacgagct	gcagaggcca	gcgaagccga	catcgcaaga	tattggatga	360
tgccataacc	cgtatgggtc	tcgtaacggc	cgtatgggcg	gcggaacggg	taccggtgcg	420
gcccctgtca	tcggtcggat	acacgtgaac	tcaatatact	cactgtcggc	atcgttacca	480
tcccattcgt	ttcgaaggca	agcgcaagat	tctgcaggca	ctcgaagggg	tggaggaaaag	540
cgcaaacgt	agatgcctgc	tcgtggtcaa	taatgaacgg	ctccgcatat	atacaagatc	600
tttaagcttc	gacaatgctt	tttgccaagg	cagacgaaca	ctgaccaacg	c	651

(2) INFORMATION FOR SEQ ID NO:888

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 898 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...898

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:888

gtgctgatgg	tcattttctt	ccttgctgtc	ggtttggaga	tcaagcaggg	attttggctc	60
gcgaattgtc	ttctttcaag	aaagctatgc	tccccattta	ggagccatag	gagggatgat	120
cgtccctgtc	ctttttcttc	tgctggtgtt	catgaaggcc	ctggtgcaag	aggtgctgcc	180
atccctatgt	ctacggtata	gcttttgctt	tggcggcctt	ggctgttttg	ggaagtcggg	240
ttccgcaagc	ctcaagggtat	tcctgacggc	tttggtgtgt	gccgacgata	tagggttatt	300
atcgttattg	cgctcttcta	tagttcccat	atcaacatcg	ggagttggcc	attgccttcg	360
gtatccattt	catcatgtat	ttgatggggc	gttgcatgtg	agcaacttag	ggctttactt	420
cgtctgtact	ttctttgttt	gctctttttc	ctacagaagc	ggtatccata	ccacaatagc	480
cggtgtgctg	cagctttcat	gattccggcc	cgtcctggac	tacatgccaa	gaatcttcgg	540
ccgagatgcg	ttcccttttc	gaggcaatgc	ccaatgacaa	gatacgacat	caggtagctc	600
tctgatcttg	agccataacc	aaatcaacgt	aatcaacca	tgcgtaagat	tgcgcgtaag	660
gctataagtc	ctatgcagct	catggagagt	atctcagccc	gatagtaggc	tacttcgtct	720
tgctctcttt	tgctttgcca	atgctggcat	cacgctcgga	ggagtcacgg	cagatgcctt	780
gngggcgtgc	ccgatggctt	gattcttggg	cttggtgtcg	gcaaaccttt	gggttacttt	840
ttcacctat	ggtttgncaa	gatgaagctc	tgcccttggc	ccgaaggaat	gagcccg	898

(2) INFORMATION FOR SEQ ID NO:889

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2410 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...2410

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:889

```

agtcataaga agtactacac atagatgata ataatgcctt aaggcttcaa acgtttgaag      60
aataatagtt tccttattgg ggccctccgc cggatttgtc tgtccggctt tcttcttctg      120
ttcgcgttct ttcgctcgtg ccttacgtct cgctcgcgtt gacgaagttt ctccttccgc      180
tcacgttctt tttcttaagc ttctgctcgc gttccttttg cttgagacgt tgatccttaa      240
gcttgccgca cgggcttttt ctcggttctt ttcccggtgt ttcaattctc gtttcgatcg      300
cgctcctttt ctcgcttggc cttttcgagt gctttctttt cgtcttctca ttttgtgcac      360
gctctttggc cagccgctga atctgctcta ccagacgtct ttgccttctt gctgcttgag      420
cgatggcaaa gcagctgcac cgagatcgta tcggctgcgg aagaatcggc tgccacaggc      480
ttggctccgg gaggatctgc tccctatcga tgtcgaaagt aataggagta gccgtcatat      540
gctgtccttg tgcggttga tggagacaay aggtttctct tctgtgccga cgtactatcg      600
cgagcgggat cctcggcctc gttcttgtcg gacacgaagg agccggagtg ccagcaggct      660
ctatgtcctc atcctctttg ccgacacttg cgctcgtccg gtcattctgt gccagcgatc      720
gaggacgaag gccgttcggg cacttcttct tttgcgagga aggtcatgta ttgacctatg      780
ctttaccctt gacaagcagc tggtaattgc tctccgatat ggggaacaac aggtgctttc      840
gcccatcgca ctcataaatc cgttcggagc gaaagcatcc ttatatactg ccagcccatg      900
cgtggggtcg ggagagaggt catcagccac tatcgaatgc tcccacgggtg ctctgcaacta      960
tttccagtgt ttgctctgta agcgagagaa gttgaatgaa gcaagagcaa aaagtaccct      1020
gtttttatta atgtaccggc aggagcaaga aggatcagac gggtagcgtc gaaagattgg      1080
gttttacaaa aggaggcaaa gagtccggcg atatgctgtc ggtatccaac tgccccaccg      1140
aatatcccag tcgatacccg tatagccgcc ctgtacatgg aacggcccgcg gagcaactcg      1200
gtaagcatcg aggaggccaa ttcgggacgt ctgctttcgg ataactcttc accaactgct      1260
tcagggcaga ggtgagccct tggagtctga ctccagcaca taacagagtg cattgaggaa      1320
gtcaatttcg gcgccagttc cgataggggg aatcgctcgc ggcattcatt tcgctctttc      1380
tgaccgaacc gactactcct ttgaggtagg agtcgaaagc tgcccgtaga gttcgttctg      1440
gcgacgatcc attgcggcca attccttcag taatcgggat tgctcagggc ctttgccaga      1500
ttgtcttcgg gatagtactt aggatcaagg cgcggcaacg ttccgcttcc ggcttgttgt      1560
tcattcggtg tagagcataa agagacgata gagcacatcc atcttcttct catagtggg      1620
tagcgacgaa gcagggtctc gtaagtgtca gccgattcgt cgaactctcc atccgctcat      1680
tgaagaccgc tcccatgcgg agcagacctt ctgcatgagt ttgccggcag cttccttggc      1740
atcttccgtc atttgtaatt gtgcagatag tattcgggtg tgagcggatt ggaagtgtcg      1800
gaatcggcag ctgcgcctgt agctcctctt cggtcaccaa agttccgggt tgctgtctcat      1860
catctcttct gcagtagaag aatcgtcagt aggaatgtcg aaattggcct gttgcgtcta      1920
cgtctccaat catcttccag cacacgcttt cccattttgc ttcgaaagcg gctttgcctt      1980
gcgctatcag ttgaggatta tagaaataga ttaccagaa gctcctccca tttgcattcc      2040
gggcgggtgga ttttgagttt tccgcggcca gagggagcga atccttcaact ctccgcattg      2100
aaaagctttg gctctgctgg agttttgcca tctcctctc ttcgagtcgt ttcttctctg      2160
tatggcatag gcattgataa cgctgtcgat aatggccagt cgctgtcttc cggcatggca      2220
gcaagagcaa gaaggctgtc ctgctcgtgc acgacttggc atgaccgacc aattcatcga      2280
gccgggagga aagttcggct acgcttgta gtcgggattg agtctgttca gtacaccgct      2340
tgccgcagag aacaggctga gctttcaggc actgcttctt ttgatataga tgtcgccaaa      2400
caatctgcag                                     2410

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(2) INFORMATION FOR SEQ ID NO:890

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1127 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1127

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:890

```

gcttcgcagg agccgcccc aggactatth gctgggattt tcttcttgcg tgtacacaag      60
gacgaattgg aaatgcttct tgggtggagt cttattcgaa aatagggttcg gagggacaaa      120
acaagacttt cctgatcagc atgaagtggc acagttccgc catcagcaac tgcacggtga      180
tgagacgccc attttgtgct cgatgatata ttcgacaaac tggatgccac ccgtgtggag      240
cggatatccg ccttgctcggc ggtaacggtt tcgggcagat cttcatcaca gatagaatcg      300
gaaaaacttg gacgagatta tcgcttcttg gagtggaggat tacgcctttt caaaatagaa      360
aacggacaga tattccaata ataggtatcc ttgatggaaa aaagcgaaat acagaaagtg      420
gatcaggtaa ttcgggcttg gtggaggatg aaccgctcat gtatgaacga cttctcgagg      480
tggaagcttt gaagctcttg ccacaggtgt tggggcctct ctataaattc ctcggtcgtg      540
ccgattcatg acggcgtact gtacctgaca ttcaattcgt ccggtgttgc agccagctga      600
gcaacaacaa agcagagttg ctcttcaggc tgaatacgcc gtggatgcag aactgattcg      660
acaaatagtt ttcttatagg tctttgcgat ctcttcaat gactatcgaa aaaagggggg      720
gggagacttt aaccgaacgt gcggtttttt gcagacgata gcagtcgata atcttgatcc      780
tcttccatca agtgccagca ttcgctcggg aacgaatgta gaaagggtac gtaggcattg      840
cttactgtca tgttggaag agtagccagt tctctcgac taggtagata cttagggtag      900
ctccatcatt ctcaaaccg aaattctctt tagtatcagt agcgtttcgg ccagtcggcc      960
acgaacatgt ttctgcgtga cgttacggtt cgctttcttg catagcccaa ctctttggcc      1020
aaaggcctta ggaagtatct acagaatgag gtgtttcctt tcagcaatgc ttcgatagtt      1080
cgaccgggat ggcaaggact ttggagtttc aacggcaatg gctgtgg      1127

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(2) INFORMATION FOR SEQ ID NO:891

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 611 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...611

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:891

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aagtcgctgc ccatgaagta gtctttcttg gccgaatgct ccaactgatgg acgggtcttc      60
ttcatagcag gcaggtagag ccatttgtca tcatccttcc gatctgatca taatcccatg      120
tgaggaaacc ggtgcctttg acatcgccgg atagaggaaa aacataatag tcttcttgtc      180
tttcttatcc ttaccctgtc aatggagtag gaaatgagtt tgcgctcacg tacggctcct      240
cgtttttaat gagcttcata gtgagttcgg agcgacgcgt atcaccgtcg gggcgtcttt      300
tacgcgctgt gctatgtcgc gccctgtctg ggcgtagatg ctgaagagac cattgctacc      360
atggctgtca tgagggtggt ctttgccaat cgttcatcgt tttctgtttt tgtagctgt      420
tctatattta gtcttcccca ttttcaggaa ggcaaaaatg tacaggcata tgcctaatacg      480
gtaaccgtgt cgggagagat tggctctgcc tcttttttga aaccgatacg gcaaaatctc      540
tttcccgaaat attcggaaatc gtcggaacag ggagtgccgt gatgcagagt ctgcaaaaag      600
ggctgtgaac a

```

(2) INFORMATION FOR SEQ ID NO:892

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3208 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3208

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:892

ccgcaaatac	ttcgagaagg	acaaggctct	ggaacgacgc	ttccagatgt	gatggtggac	60
gagccggacg	agctaagctc	catctccatc	ctccgggggtt	gaaggagaaa	tacgagaatc	120
accacaaagt	gcggtatcaag	gatgatgcat	cattgcggcc	gtgaagtgtg	cgcaccgcta	180
cattacggag	cggttctgcc	cgacaaggcc	atcgacctga	tggatgaggc	tgcggctcgt	240
ctgcatggga	agtggattcg	ctgccggagg	agctggacga	gatctcgcgc	aggacaagca	300
acttgagatc	gaacgcgaag	ccatcaagcg	agagaatgac	gaaagaagggt	acagttcctc	360
gacagggaaa	tagccgaact	caaggagaaa	gagcctcgga	gaaagcccaa	tggcagaacg	420
aaaaagatcg	gatcaatcag	atcagcagct	caagatagat	atagaggagc	tgaagtttca	480
ggccgatcgt	ccgaacggga	gggcgattac	ggacgagtgg	ccgagatacg	ctacggacta	540
tcaagcagaa	agagacggag	atcgacacga	tacagcagca	gctgcacgat	tgcagcgtgg	600
cggctccatg	atcaaggagg	aagtggaggc	cgacgactag	ccgacatcgt	gtcgcgctgg	660
acgggtatcc	ccgtcagccg	catgctcaga	gcgagcgcga	caagctgctt	catctggagg	720
acgagctgca	caagccgtga	tcggtcagga	cgaagccatc	cgtgccgtgg	ccgatgccgt	780
ccgtgcagcc	gggcaggcct	tcaggatccc	aagcgtccga	tcggttcgtt	catttccctc	840
gtactacggg	ggtgggcaag	acggagtgtg	cacgtgcctt	ggcgaattgc	tcttcgatga	900
tgagagcatg	cttacgcgaa	tagacatgag	cagtatcagg	agaagttcag	tgccacgcgt	960
ctgatcggtg	cgctccggg	tatgtgggct	atgacgaggg	tggccaattg	acggaagcca	1020
ttcgccgcag	ccttatcccg	tggtgctttt	cgatgaaata	gaaaaagctc	acccggattg	1080
ttcaacgtat	tgctgcaagt	cctcgacgat	ggccgcctga	ccgacaaaag	gggcatgtgg	1140
taaacttcaa	gaatacgctc	atcatcatga	cgctcgacctc	ggttccggaca	tcattccgca	1200
gcggtatgag	aactcaccgg	cggagatcgc	cggtcctcca	cggcccgagc	ggccgatgag	1260
gtgatgcagc	tactaagcat	acgatccgcc	cagagtctct	gaaccgtatc	gacgagacca	1320
tcgcttcacg	ccactgaccg	agaagygat	ctacgagatc	gtccgcttgc	agtcgatggg	1380
atcgtgcgcc	aactggccga	taacgacgtg	gtgctccact	aacggagggt	gtcgtgacct	1440
ttgccgctcg	cgagggatat	gatccgcagt	cggagcgcgt	cctgtgaagc	gagtcctgca	1500
gcgattcgtc	ctcaacgagt	gagcaaggca	ctcttgcccg	atacgggtga	cagtacacgt	1560
cccgtcctat	cgattgcata	gacggatcaa	tcgtcttccg	caacgaatag	tagcctcgcc	1620
tgctttattc	ctcttattcc	ttcaaggctc	cttcgggcag	gtggctgccca	cttcccggag	1680
gagccttttt	tatgtttcaa	ggggtatctt	cgagtcatcc	ctaaggggtc	tatatagaga	1740
ggatagtatc	ctctcatatg	agacatagta	tcctctcata	tgagaccata	gtatcctctc	1800
gtatgagacc	atatatcctc	tcatatgaga	ccatagtatc	ctctcgatatg	agaccatagt	1860
atctctcatg	tgagaccata	gtatcctctc	gtatgagacc	atagtatcct	ccatatgaga	1920
ccatagtatc	ctctcatatg	agaccatagt	atcctcttat	taagactata	ctattctctc	1980
cgtattttatc	atgttttttt	caggaaatga	tttcaacttta	tcgacagagg	agaaaagcaaa	2040
gggatggcaa	tatcggctgc	ttcgtctgtg	gttttcaact	tcatacagc	cgccatggag	2100
caaatgggag	gggcgaccgg	aaaaaggatt	gtttcccgga	aagacgaaca	agggcttcct	2160
ctgcggaggt	tatcgggtta	ccttccggaa	gtagctgtag	aagagatgcc	gagcagtgtc	2220
aggctgatgg	gaaaggccga	ccagataccg	gccactgcat	gggcgtattg	cccgatatga	2280
atacgaatcc	cagcaaatag	gaggtatcgg	tgccagcaat	acgtggcaga	aagctgctgc	2340
cggagccaga	aacgaacgcg	ctccattcct	cgacagcat	tggaatagat	ggcttggagg	2400
gatctccgaa	ttggtagacg	acaacgggga	tcaacgtaag	ggcaacgatg	gcgccacctc	2460
ttcgtcgggc	gtgaagagga	aggaaaagct	gtgccgtgta	gcaaaagcag	tacaaccaca	2520
acgcaggcag	tcaaagcggc	cattcgggtg	cagtggcggc	tacgcggcgg	acttcgtcgg	2580
gtttgccgtg	cagcttgagt	gactgatgcg	gatgggtggg	gcagcaccaa	gcccgttaata	2640
gacgagttagc	cgagcgtggg	gatgacgcag	acgatctggg	gtgctgccag	agcctatcgc	2700
cgagtcgccc	gacaaaagg	acggcgatgg	tgaagagggc	cgatcgagtc	ccatctggac	2760
ggcaacgggg	agtccgacgg	agaataggcg	gcgtaggcgc	gacggatatg	catctgccgg	2820
cagaaggcgt	ggcggatcgc	tgccatgagg	gtctgcgata	gaggaaaagg	acgatgggtga	2880
cgagcatcag	cggcggtcca	acagggtggc	atagcccgcga	ccgaggagtc	ccatttcggg	2940
agaccgcctt	tgccgaatat	cagcaggtag	ttcagccccga	cattgaagaa	ttgcccagata	3000

tggtaatata	catcgggggtg	cgcgtatcgc	tcatgccgca	tagaattgct	tgaaggcatt	3060
gaataccgtg	acgaggaaga	ggcctccacc	tgtacccaat	aataggggat	ggcgagaggg	3120
cggagcgagg	gtggggagttg	aatgtatcga	acaggggaac	catcacggct	gccacacctg	3180
cgaggagagt	ccgatcgctn	tattgagg				3208

(2) INFORMATION FOR SEQ ID NO:893

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 509 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...509
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:893

gagatccgta	ttgacattga	gggcaaagcc	atgcatcggt	atgtgccgat	gcttttcacc	60
cctatcgcg	agattttg	agtagcccc	ggtatatcg	atccagccat	acgccggatg	120
ctccggccga	acgttcgcct	ttcagacgaa	tatggcaatg	agatcgatga	tacactgctc	180
aagcatttcg	atatagtgcg	taagccgata	ccgtattggt	cgagatcgaa	tatgggggat	240
cccgtatttg	tcccggcccc	tggtaggtga	tatccccctc	tcgtttctata	tgaatagtcg	300
gatgtngcga	cttttcagct	cggactcgga	cagcaacaga	tttcttcatg	accogtggtt	360
gcccgaaggt	agaaccggnt	catgctcaca	gagaacagcg	tattttgctg	nttcctgttt	420
tccaatttgt	ctggctacaa	gatcatggaa	agaagcttgg	cgttgcaagg	tcagtgccga	480
tttcgtaacc	atgccgtncg	ncagtcctg				509

(2) INFORMATION FOR SEQ ID NO:894

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1747 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1747
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:894

tcgttccccg	caatacccgt	ggcagacaga	agcgcgagag	tatagatcgc	tgcaggaagc	60
tttgagagag	gatttgcccc	ttatcacttt	cccggccgct	tttggtcccc	tctgatcgaa	120
ggtaaggtcc	aggatacccc	gtggaagaga	gctttgtccg	tcaggcctac	gccagcaaac	180
gggatatagt	tccacttttt	tcgatggact	taattcaaag	cgtttctacc	ggatagagcg	240
tctcctcagc	tccttggtct	taagttcaat	atcgggatgg	ctttgctgcc	ggataaatgt	300

ttcggagcaa	gggacgccat	tttcgcgtat	tgcgaggccg	gccattccat	ggcaatctct	360
tgcgtctgcc	ccccgagata	cggccgagca	ggacttcata	tccgttcact	ggtatatgac	420
ctcagcccg	cggccttaaa	gaataacccat	taaaccatg	tgcctcgaac	ccataattgc	480
tccgatttca	ccgagttgct	cgagcaggag	ctgactgccg	atcgttttct	gcggatgaca	540
acaaagccgg	caatgagatc	tatgttttta	cggccgaaga	agctccgctt	gcatgaaaga	600
agtaggccga	ctgcgagaag	aagcctttcg	gcattatgcg	gaggtactgg	caaggcgatc	660
gatatagacg	agttcgacac	catgccggga	gctacaaaca	gctgatcgta	tgggatccgc	720
aaaacaaggc	tataccggag	gctaccgctt	tatctatggg	cgggacgttg	ctttcgatac	780
cgatgcaagc	ctttgctggc	aacggcagag	atgtttcgct	tcagtgatgc	tttttgcacg	840
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acggatgggc	acaaaggcca	tttttgtgct	gacaatcttt	gggacggtat	cggagcactc	960
actgtagtca	atccagaggc	ctctatttct	atggcaaggt	gaccatgtac	aaagactatg	1020
atcggcgagt	cgcaatctga	tcctgtattt	tcttcgcaag	cacttctccg	atccggaagc	1080
ttggtcaagc	ctttcatccc	cctaccgata	gagatcagtg	cggaggagaa	gccttgttct	1140
cctcatccga	ctttgacacc	aattacaaga	ctctcatata	gaagtgcgca	agctgggtat	1200
caatatccct	cctctcgtga	gtgcaatata	gctttgtctc	cggagatgcg	tgttttcggc	1260
actgcagtga	atgatctttc	ggagaggtgg	aggaaaccgg	catattcatt	gctgtgggta	1320
agacctggaa	gagaaaaaac	aacggcacat	agagagcttc	atcctcagcc	ggacgaaaaa	1380
aaaggtctcg	acagtagcaa	tggccgatca	taacgaccgc	gacgccaagg	cgaagagatc	1440
gcgctgaaac	acctcaggca	gcaaggctat	agatagaagc	cctgaactgg	cagtcggggc	1500
ggcgcgagct	gcatatcggt	catccacgtc	cagagaactg	gtcgtttgtg	aagtcaagac	1560
tcgtaccgag	gctttctact	ggcccccgaa	gaggctgtgg	acgcacgcaa	gcggcgatga	1620
tttccgaatc	tgcgcatcac	tatgtgcgta	tgtacgccat	cgatctccgg	tacgcttcga	1680
tgttatatct	gtagttttga	gtgctgatgg	ttcctcaaac	gcatcgaaca	cagagaaaat	1740
gccttcc						1747

(2) INFORMATION FOR SEQ ID NO:895

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1092 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1092

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:895

tcgaactcgt	gtcggatgag	acgaccgtct	cctcggcgga	tatcaaggcg	tctttgaccg	60
cgtgcctaaa	gtgctcatcc	gtctgcttca	ggacggcaga	gcattgattg	tggcgacatg	120
ggtacctacc	gccccagcat	tacggcgagg	cgggttcggg	cgttgatagt	gccgacaagg	180
tgacggtgga	gcttgtgaca	aggcgaaggt	catctatacg	cctcgtatga	aggtcaaaac	240
tgctccaagg	gcgtccgtat	ggagcgtgcc	gagcgtgtcc	ttgatgtgcc	ttacctctt	300
cgatcaagcc	gaatgagaac	aacagcgggc	gatcttcgtc	ctcgacaaca	acggacacgc	360
cggcctgtaa	acaaagcatt	taatagcgac	aagataaatc	tgaacgtcct	tattcgacaa	420
tacatcccta	aaggttcttc	ttcatcgata	taacgaccaa	acagatctcc	attatacaca	480
acaaaccgaa	ctcagaccag	gaaagaaact	cggattcaga	acgccgttcg	aatgcttctc	540
ccaaattcac	cttagtggtg	catttatattg	tggaaatctgc	acagccaaaa	aaagaaagaa	600
aaacgcaacc	gaataagaat	aattgctata	tttgcgtcgc	tatcgggatg	tagcacagtt	660
ggtagcgcg	caggttcggg	acgtgggggc	ggaagtctga	gtcttctcat	cccgacaacg	720
ccgtcaatat	tccttgggat	tattgacggc	gtttttttgt	ctgtaacaaa	tgcaaatcct	780
cacctctcct	aaacagagag	aactgacgga	ggggtctgca	aaaagggcag	atagttacat	840
gttttttgccg	aaaaagaact	gcatcagcag	caaattcaag	acagcaaagc	acctcccatc	900
aagacgatct	ggcgctgttc	aggcttgagg	acagaaaata	ggccactatg	ccggtgacga	960
agatgaccaa	tatcagaaaa	tgatgatacg	tgtaatacgt	gatcttcgga	gcttcattat	1020
gtcattgtca	aagagaaaaa	aatcagagcg	aaagagcgcg	gagttttag	ccacgagtcg	1080

aagttcctgc ac

1092

(2) INFORMATION FOR SEQ ID NO:896

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 809 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...809

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:896

```

ccctgccaaa agtaacaaag gaagcaatga ccatggacaa aagaactgtc gacagccagt      60
attacagagc ctaacgtaaa gagggccggc agtatgtgac gggcttcata ctcccgggat      120
gccgtctttg caaatgaata cgggcaaacc ggagttgtac acctgacgga agaacttctt      180
aaaatcgatt cgccgttatg gaaaacaaaag gtttccggaa acaagcatac gttgtatccg      240
gccttaagag acgcagacta aaatcaatat cttcaccgaa gcgcattctt tccgaaaacc      300
accgagttgc cgatagaccg aaagtttgca gccaaaattg aaatgcgagg atagaacttg      360
tccagtcgta ctctttctacc ccacgaatg ccccggtcgt gaagaaagag gtcctcgcac      420
agttaatggc tttttgtatg gtgagaatcc ttctgctgct gcctcagggc cgccgaaagc      480
atctgcttgc tctgttcgat cctttttttt actgcggcta tataaccgct cggcagtaca      540
catccgagtc caatatcaac agatattcgc ccacagccat tcgtgcacaa tgttgcgcgc      600
agcagccggg cctccattcg gcaactctac atactgtttc ggagaagttc tctgacgcga      660
gtccacttct ttgtcgcagc acacagcgaa ccattcttca cgatgatcac ttcaaagtcg      720
ctattcgtct gtatagcaga ctctccagca gctccgcac ttcgtcgggg cgattataaa      780
cgggataata atagagaaga ccngggggg                                     809

```

(2) INFORMATION FOR SEQ ID NO:897

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1028 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1028

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:897

```

ctgtctgata ttgcccaagt agatggcttc tggatggcgc aaagatgaaa tgtccaatgt      60
gcagacgggg catcgactg tactggaaga ttaagaacgg agtttaaccg tccgatcgac      120
gaatcgaagt tcaactgtac ttctctcaga aaggttctct ctaaactatg gaagtgaaga      180

```

aaaacacagt	ggtgctcgcc	ttctgatttg	gttcgtggcc	attcttctct	tccactcctc	240
acggcgtggg	gacaggaagg	ggaggggagt	gcccgatata	gattcaaagg	attctggata	300
cctaccatgc	cgtacgcagc	tcttctcctt	ttgatttcat	gagtcgcgta	cgagagttag	360
aggtgagctg	gagaggtcgt	tcggtaatcc	gaagtagccg	tatcggtcaa	tgccacctac	420
aatgctctac	tgaaagacga	gccggcttac	gtttacgtga	agccttcttc	gagcatcagg	480
aagagcattg	gggttgcgcc	tgggacgaca	gattgtcatt	tggggggctg	ccgacggtgg	540
cgcatacagg	atctgatctc	cccgatggat	atgaccgagt	ttctggcaag	gattacgatg	600
atattcgat	gccgggtcaat	gcattgcgtt	tctctgtttc	aacgaatcga	tgaaagtggg	660
agtcgtggta	ctgcctgtat	tgcagggtac	cgtctgcctg	tggatcctcg	caatccttgg	720
aatatcttct	cccttcgccc	attgctcagg	ggatgaatat	cgtctggaaa	gaagaagccg	780
gcaaccggcc	ttcaaggttg	ccaatatcga	gtacggtgcg	cgatggagca	ctagctctcc	840
ggtatcgact	tgcctttggc	tgcattgcat	acatggaaca	aaatgcccg	catcgaagta	900
cagggcattg	tgcgcagcga	aatcatcgta	gcctcgctat	taatcgatg	ggattggctg	960
gcggcgacct	cttcctgtacc	cgtcggacag	ttggttttca	agggagagct	tgcgttcaat	1020
atcgacca						1028

(2) INFORMATION FOR SEQ ID NO:898

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 755 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...755

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:898

acgcctgaaa	tgaagcagct	catctcaggc	atcaaagaag	taagcaaacc	tttcggggaga	60
ttgccc aaac	acaccgtccg	ctctttgggg	gagaaattac	cttacgggac	gaggaggtct	120
gcgaacggct	tttcgtcagt	cctcgtactt	gcaggactat	cggaacaagg	gcattatccc	180
ctacatccaa	atcgcgggaa	aatcctttat	cgacactccg	acatcaacct	actactgcaa	240
gagaatatgt	caggcagaga	actctatagc	ctgttcaacc	atagcttttg	ctcgtcaagt	300
aaagcttttg	attctctcgc	gaaagcaaaa	ctcttgga	ccaatccgag	agtttttgct	360
gtatataaac	aggagacata	ggattatca	ctgggatatt	tccgagggct	tccaatgctg	420
aataatagaa	cctccagcat	ccgctctgct	tgcattcgca	caattggcga	attgaggaca	480
agagtaagat	atcgggtaaa	agttcttttc	ccttcatact	aagatgcaat	attgctccta	540
ggtaataaatg	tcagcatctt	cctccatctt	ataagcaata	cctacactcc	atcttttgag	600
agaagaatgg	tattttttacg	aggtcgtgga	gctgtggata	agtagagcta	tctaaacaaa	660
tacttgaagt	ctctatacca	aatttattaa	ggtcggctac	tcttacaaaa	ggtatccatt	720
ttcttgataa	gcacccctac	ccggtcttat	gggat			755

(2) INFORMATION FOR SEQ ID NO:899

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2744 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2744

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:899

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tcgacggcac tgaaccagaa cgtatcgctg aacgtataga ccaaggctca acgactccac      60
tgccgagtat cgtgattact cgtggaaagg atattttctt gacggctctt ccaatccgga    120
tacattgcgt actgtcggta caagtaccgg cggacaagggt gggtaatcgt ccaaaacaaa    180
aacaggatgg taaaggactg gccagtgac tggtagcatt ggcaagccat gccacctgtg    240
acggacgctc gtgaaatgcg atatgatatt atagacgagc atgaagaagg gtgcccgggc    300
ggatgaccga tctccaactt gtttacgcag actatgaact cggacagtcc cacaggctgg    360
ctgtaggctc gattgtcatc agatagacga tactgcaact gcaaaaacgc cccaaccgac    420
gacattgttc agaaatctaa acgtttccat tccatatcat tgtattcttc tatgatgact    480
taaacgtatt agcaggggca aaccctactt ctgcgcgata aaaatgttga tgggagtagc    540
caaaaatccc agtgggcacg aatctgattc tccaaaaaac gcttataagc tctttcaccc    600
actgaggcag attggcaaaa aaggcaaatg aaggcacgcc gtcggaagct gcatcacata    660
ttttatcttg atgtatttac ctttgagca ggtggtggcg tagcctcgat aatgggtagc    720
atcacttcat tcagctgtgt gtgggaatac gagtcgagcg gtgtgcatag acctgattga    780
ccgttccaac actttgaaaa tcctttgttt ggtcatagcc gatatgaaga gaaagggaaa    840
tccgtaaatg gagcaaaacg ctgccggatg gcattctcaa actcttgatg acggcttgac    900
ttttatcttc caccaagtcc cacttgltga tcatacaacc agtcccttgc tattgcgtg    960
gataatctga aagatatcca atcctgcgac tccacacctc gtgtggcatc cagcatcagc   1020
acacatacgc ggagttttcg atggcacgaa tggatcgaat aacggagtag tattccaatc   1080
ttcattcact ttgccccttt tgcgaatacc ggctgtgtcg acaaggtaaa attgagtcg    1140
aacttattgt acttagtgta tatagagtc cttgtctgcc tgcaatatcc gtcacgatat   1200
gctgtctctc tccgatgaag gcattagcaa ggagcttttc cctgcattgg ggcggcctac   1260
gatcttattc cgaggagtgt ttcgtccaaa tccgattgtc cgttctctgc cggcaatagc   1320
tcctcacctc gtcgaacaaa tcgcctgttc ccgaaccgct gacagctgca atcagtaagg   1380
atcgcccaag ccaaaggaat agaattcgga agcggaataa tatcttcggt attgtccacc   1440
ttattggcta cgactataac cggttttttg ttccggcgag tatctcggcg acttgttcgt   1500
caagagaagt cactccggtt ggttgtctgc gacgaagagg actacatctg ctctctcgac   1560
agcaatatca cttgcttatt gatttcttcc tcgaaaacat cttccgaatt gaccaccaac   1620
ctccggtatc gacgatggaa aactcccgac cgttccaatg caccgcgctg actgcctatc   1680
gcgcgtagta ccggcctctt cggctacgat ggcttccggc tttgggtaag gcggttgaac   1740
aatgtgctct tgcccacatt cggaggccta cgatggcgac taatgctccc atatctatct   1800
ctactctatg attcgttctg attgttgctt gtcaggctac gaccgacgaa ggactaatcc   1860
aatgatagcc gaaggcacga agcagattat cctgttgctg ccagtctttt tgaccttcac   1920
aaagatttcc aagaaaattt tctttccgaa gaaacgttcc aatcacgccg ggccattgac   1980
cctacacggt tgatggccgc ccttttaggc cgatgattat tcctttttga gaattacgct   2040
ccacgatgat cagcgataat tacggataat ggtcttctcc tccttgaatt cctccacgac   2100
cacttctccg catagggaat ttctttttga taatacagca gtatcttctc acgaatatct   2160
ccgtaacgaa aaaacgtgcc ggcttgctcg tgagtgcata tttttaaaagt aaggaggaga   2220
tgggggaatg aggctttcga tacgcttctg cagcatccga cgttaaagtt gttcgtggcc   2280
gaaagagggt gaatttctgc tttggcaata tattgcgcca ctctccaca agttgttcca   2340
atgcttctg atgctcaggt cgatcttgtt tgagccctct ccaccacgtc gtcacataaa   2400
tatacgcgag cgagaaaatc agcattctta tcagccttct caccacgtc gtcacataaa   2460
ccagcacatc ggcattcccc agagcagatt cgggaactc cgcatcttct gttggagttt   2520
gtaattggga cgaagtactc ccggtgtacg gaataaacga tttgcatctc cggcgtatct   2580
acaatcccca tgattcttgt ctggtggtct gcgccttgga ggtaatgata gaaatccgct   2640
caccgaaagc agatttatca gtgtactctt cccaacgttg gggtttccaa cgatatgaca   2700
aatcccgaac ggtgaccgga ctctctact tgcatttcga agct                    2744

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(2) INFORMATION FOR SEQ ID NO:900

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 506 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...506

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:900

cgcaagttgt	agtcggtctt	cctataaccg	aatgagagcg	atgaccaatg	atattttcca	60
taatccta	tagaataaga	ttgtttatga	ttaagatgta	attgcaa	atg tgtttcattc	120
agcaactctg	caaaggtagc	aaataataat	ctgttaattg	cttttggttc	gataaatgaa	180
agcaggtacg	caaagtctat	ttcggacgat	accaatccac	taacattcgt	acacctgtgg	240
ttatgcgatc	cgatgcttcc	agcctaaggc	atggagcttg	cttacatccg	tcagttgcgc	300
atcgtgccgt	cgggtttgga	ggagtcgaac	tcgataaggc	cctgtaaccg	atggtccttg	360
ctatcagcga	agccaaatcg	cgaatggaga	ttcctccccg	gtgccaatgt	tgatatggca	420
gttgccgcatc	ttcttgagtc	cgtggggata	catatcggcg	aagtcgcaag	tgctccatga	480
ggaataacgca	gcattcggcc	atctct				506

(2) INFORMATION FOR SEQ ID NO:901

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 602 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...602

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:901

gttctcgctt	cttcatgtct	aaaaaaaaacac	ttcgttctcc	tccgacaata	agttttttcc	60
ttgaaaagcc	tccgaaagag	cagagaatcc	ataaagtcac	catggaaata	catcgtgtat	120
tcctgacttt	tttcttgcac	tttttggttg	caagttttcg	aatttggttc	ttctcgattt	180
gttttatttt	ttcaggatct	tcatttcaaa	agaataagaa	accgtcacag	cttttagactg	240
cgagaacttg	gcaaagcgct	catcattaaa	aatattgcaa	aaaataatct	ggcctaacac	300
aactttttac	taatcaaagc	gagagtattg	cctcccgttt	tgatatatta	taggacaagt	360
tatccaaaag	cctatagtca	aaaaacagac	ttgttctttt	cgataataat	aataactact	420
gtaccatcat	catagatgat	gtccaaacct	caacctcttg	tgcaactgag	cttgagcctc	480
tgtgcaaagt	ttcaacagct	acttcttggtg	gaagtgccac	cgtttcagtt	gcacctgctt	540
cggggcaaaag	cacatagcag	ctaattgctac	ggctaacgat	gcgaaaaatt	cttcatagtc	600
tt						602

(2) INFORMATION FOR SEQ ID NO:902

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 694 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...694

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:902

ccaattccgc	aagattttga	cagagaaggt	agaagacgtt	tcttctcacc	tttttctccc	60
cctgtttttt	gtcagttccg	gttttgcaaa	cgaagttggg	ttgtggacag	tgcttccctg	120
tggctactga	caggtgcttt	caccttggtg	ccattatcgg	caaattcggc	ggtacgtatg	180
tggctgcaag	gttctgggag	agaggaagaa	agcatcgctt	tacttagggg	cgttcatgaa	240
tacgtggcc	tgatggagct	tgtcgtgctg	gccatcggac	gcgagcttgg	catctccctc	300
cggttatatt	cacaattctg	gtgatgatga	ccctgatcac	cacttcatga	cgactccctt	360
gctccgactc	atagatcttt	tcttcaaacg	cggaccgagc	ttgagaatgc	agcacttcag	420
aaagagaata	gcggggccgt	atgctttcgt	tcggaagggc	ttcgagtggg	gcacatttgc	480
ttcatgccac	gacctcttga	tgcacggggg	cgatgagaaa	ccctctgtta	cggtctcttct	540
atcactgtcg	ggagcgacac	gaatctgact	tcttcggaag	tatatgaaaa	agagcttttg	600
ctcctatccg	agaagaaaagc	gatcgcagac	gactcccatc	agaacactgc	atcaccacac	660
gttcgagcat	ccggaggctt	gaggtatacc	tacg			694

(2) INFORMATION FOR SEQ ID NO:903

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 857 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...857

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:903

ggactcaatg	tcttcccttt	ttcagcaggc	aatagcgtct	cgaattcttg	aacggcatca	60
accccgatct	tctgatttat	atgcntcacg	gacgtttggg	caggccattc	cactgaaagc	120
ggaaggcatg	gcttgcgcaa	gcaaaatttt	cctattcttg	cacttcttta	caatcggcaa	180
ttcttcgaga	gacttggttg	aagacaagca	aggtatggta	ggcgggcttc	ctggcacaaa	240
gcgtacgact	cccaggttgg	acggagccat	ggttcccttt	gcattgattg	ctctgaaaaa	300
gatgccaaga	cagggttaca	actcttcaga	accatccccg	gacactggag	gtattttacca	360
gtctggtgaa	caaatacatc	accctaaaga	acaacctaac	aaggagaagc	gcgttgccat	420
ctactatttc	aaaggaccgg	gcaaaacagc	ctcgtagcac	aaggaataga	gacctgcct	480
tctattttata	tgtattgcgc	aagatgcaga	gcgaaggcta	tgatctcacc	ggattacccc	540
cgatgaagca	gctttcgaaa	agatcatcat	gacgcaagga	gctattttta	tagctatgcc	600
gaaggcaatc	tggcacgctt	taccgaaaagc	ggctatctgc	attcgtaccc	acaagtgatt	660
tgaagcagtg	gatgcaagaa	gtccttcacc	caatcaaatt	caacatttgc	aagaacgcta	720
tggagaagct	cccgggaata	ctattcgatg	gagcaaaacg	gagtaggcgg	catcggtgta	780
accctgtgca	agttcggcaa	tgtcgttctt	ttgcctcagc	ccgtacaagg	tggagggggc	840
aacgactttc	aaggccg					857

(2) INFORMATION FOR SEQ ID NO:904

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 702 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...702

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:904

```

agaaacccta actttcctat ttccgcttag atcgaactga cgtaaagaaa gaccaatggt      60
catatcgcaa aaatgccgta caatggtctc taataagccc tgggcgatgt tgtacttctt      120
ctcgatggca tacttgctcc gaggtgcga ggtattcttc cacaatgtga agacgcttgg      180
aatcagtc aaatgtttgaca tgattactgc tttttttgac ctctccgatt ccgtacacgt      240
cgttctaaaa atggcggttt agcgtttgga aaaacgtggc tcgggaattt tttcttttgg      300
ttcgggaagt aaaaatttta cgcgccacaa cggaaaaatt ctctcgtga atctcagaaa      360
actcgaaccg cattccggcc aattccggaa ccaattcgtg aggaatctgc ttataggcat      420
ccttttctgc gcatcgtagt gaagtaatct tggcgaaacg ccttcgacct ctcccgtacc      480
ttacttccaa tctaagtgat tgtgtcttat gtggaattca tctcgtttcc ctctgtaatc      540
agcattcgat gcgaggatag gataggattt ttttattttt gagacaaaaa aaaagaatac      600
ccctcgcact atagaaaaca caaggcgccg gaaaagggaa gttgtccgat cttcaccttt      660
ctgtatccga tagagggaga ttagagcctg actgtaaaaa ag                               702

```

(2) INFORMATION FOR SEQ ID NO:905

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 514 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...514

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:905

```

ggaaattccc taatgattcc aaatacaacg caatcctaca gattggaggg gctggcctga      60
ggaagcactt tgccgagctga gtggagatag ctggtttact cctcgggaaa actcatgctt      120
tcttctttca cagatctgtc attgctgatt ttatgaaaag catgtgctat agttggaaga      180
cgataaaaacc gatggtattg naaccccatg ctgggagcct ctacctccta tgatgcccg      240
aattgagcat accatgccta tacagttttg ggatatacag tttcgaatgg agccattacc      300
tgattatccg caatccatgg ggagtgcact agccaacagg agaggagtgc taagcacaag      360
agattgggtt atccacttcg ataatatgaa gtgttcaatc tatccaaaga cgatggcatt      420

```

ttcgcaactcc gacttgataa atgagagaga acttctggtgta catcgcatat atgtattgat 480
atcagattat ttatacgggtt tgagaacgat ggag 514

(2) INFORMATION FOR SEQ ID NO:906

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 640 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...640

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:906

ggcgatttct	tcttgcaact	cgggacgaat	gagaggaatg	ggaattttcc	aaactcctgc	60
ttaccaatac	ctgtaaggat	tgttcccgaa	caagcttttt	gagtagttgc	tgtataggta	120
gggacttgaa	aagcgttagc	aatgtcttgg	attgatttga	tttgagcgca	caacatagaa	180
gccagtcgag	cagagcattg	gtcataatcg	tccgttatca	atgcacaact	actcaaagac	240
ccctcataga	tgaacaacac	acatcgscct	gggttacgat	acgccttgca	cgtggggcag	300
gtcttcacca	ttttcgtaca	aacagccctgt	aatgtcgccc	gactgccaat	attagccaac	360
tcaatgtagc	gatacttcat	atcacattct	gggtatagtt	gctgtcttta	atgggtgcaga	420
cctcaccaag	aggagcgaca	cgccagtgtg	tgccgatact	gcattgatgt	aatcctcata	480
cttaggcaaa	aatactctgc	atcaatgcgt	ccactttcaa	ggaagctctc	tttgagtgtt	540
ttacgttgta	agcatctata	ttggctacaa	agtcttgcac	ccctaagccg	ccaatagata	600
gctctcagca	gaggagtaga	gggatattcc	ctctgtcact			640

(2) INFORMATION FOR SEQ ID NO:907

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 466 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...466

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:907

ggtataaaca	accttaccgt	tcatgtcgaa	cagagatacc	tgacgaccat	agctccggct	60
acatagataa	cgccattctg	aacataagca	ttagcctttc	gttggttaaga	acagcctcaa	120
caccttcacc	cttcttcaaa	tgaacaagac	atagatgttg	taattttaagg	taggaactgc	180
ttgatgaaga	gattcgacgg	agggaagta	gcaccaccat	cttctgatat	agaaaccaa	240
tctcctaacc	atcaacggca	gggccctgat	cncatccgat	aggatgtcca	cctgggtatt	300

agcaatataa ccaactatgt aattcttgcc ggcttcaatc ttgcactagt cttgagagca	360
agattgttga tagtctgcat ttccgggatca cttcttctga ttgggccaaa atggtcatat	420
catcagccca gactgcagat ggtacttgca cgctttatat ccaggg	466

(2) INFORMATION FOR SEQ ID NO:908

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 784 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...784

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:908

gcgtacgacc ctttcgatgg ggcataaaca acgaaagaaa acgagacaaa acaaaaaacg	60
aatatagaat tatgggaaaa atcatttgaa ttgacttagc acaacgaact cttgtgtctc	120
tgtattggaa ggtaacgaac ctatcgtatt acaaacagtg agggcaagcg cacaacgccc	180
tcggtagtgg cttttgggat ggtggcgagc gtaagggtgg cgatccggcc aagcgtcagg	240
ccatcccaat ccgaccaaga cgatatactc tatcaaacgc ttcattggcg aaactacgat	300
caggtttcca gagaagtgga gagagtgcc ttcaaggtag tactggggac aataatactc	360
cgcgcgtaga tatagacggg cgtctctata cgcgcaggaa atttcggcca tgatccttca	420
gaagatgaag aagacggccg agactacctc ggtcagggaag taacggaggc cgtgatcact	480
gtgcccgcac cttcaacgac gctcaacgtc aggcaacgaa agaagcagga gagatcgccg	540
cctgaaagtt cgcggtattg tgaacgagcc tacggcagct tctctggcta cggctcggac	600
aagtccaata aggatatgaa gatcgctgtc ttcgactggg tggcggtacc ttcgatatct	660
ctatcttgga attgggcgac ggcgtttcga agtgaaatcg accaacggtg atacgcacct	720
cggaggagac gacttgacca cgtgatcatt gctggctggc agaagagtca agtctcaaga	780
aggt	784

(2) INFORMATION FOR SEQ ID NO:909

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 713 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...713

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:909

cagatcacga agaccagcgg gcactccctt ttgggcatag gcgatttata tcgccaagca	60
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tcgtaatggt	cctgtggatg	atgtacgttt	gcgctccgag	cgagttgcc	agttcctacc	120
tcttgaggcc	gagagcatgg	tcaaacgcat	tcccgtatcg	gaggctcacc	cgtgaaaatg	180
ggtgtcggca	acggatgttc	gccccctccc	tacctccacc	gaggacaatc	ccctcctttc	240
aggccctatt	cttccggcac	atccgaggcc	gatttcctcg	ccgaagcatc	gggatcgaca	300
accctttctg	atattatcag	gaaacgatat	tgcataattt	tgaccaatat	acatgggtca	360
ggctcaatta	gagcctaata	tattagccat	ccttaaaaaag	cccttatggg	acaactagat	420
agggttcgg	gcaaagacga	accacggtat	atagacagat	cgaactgagg	ctaaacacgt	480
gccaaaaaag	tttcaacaac	gaagaggagt	ttggaatgat	tccaaataag	caagtgaag	540
aagtggacat	tgaagtcgaa	aagttgagga	tacggacttt	ttcaagtcaa	atatgatttt	600
tggaagagaa	gataacgac	tatatataaa	cagtttagat	aaatatatag	atcgttttcg	660
ttttgtatat	aaatcgtttt	caattttata	tagatcgaaa	gtcattttcta	gag	713

(2) INFORMATION FOR SEQ ID NO:910

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 898 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...898
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:910

ccagaggaaa	gcaagggttaa	agatgagcgc	aaaagcttat	gccaatatca	tcaaagggtga	60
caaagatacc	aagatgcata	tcttcgaaca	ggtaaaattg	agcttcgctg	tgctgatgct	120
ttgaatatca	actattcggc	tcgtaagaca	ccaaatagta	tccttgtaga	agaataaata	180
cccttataaa	aggctgggtat	gaggaaactc	acgacacagc	ctttttcatt	acttcactgt	240
cataagtttc	cttagcagtt	gtaagaatgt	tttttcagcc	tctgactaat	agaaaatata	300
cggaaatggg	ttttttgtgc	aaaaatcagc	ccgaaaattt	gtttgtaacg	taaaagcgga	360
taactttggc	acagaaaaag	gtttatgaca	gaatccatcc	gccccctcct	ctcatagata	420
cctctactcg	cgtttgctca	gggcgggttg	tgctgcaggt	actattatct	cacaacgggt	480
tagccatgtg	gcaattcgca	tgctgctaac	atcggcgtat	tcgtacaaga	ggtcttgacg	540
aggcaatagg	cttaggagtg	aagccttcca	tagtagctct	aagttccgtc	ccggatcata	600
taccggacta	cgcacgggat	cgtccattgc	caaagggtat	gctttggact	cggaataccg	660
cttggtgtctg	tcctactttt	ggagttattg	ctgaggctgc	acgaccactg	tctcaacctg	720
attggttgat	ttgcctatga	tcgacgccag	acgtatggaa	gtttatacag	cactttttcga	780
ttccaaggta	aagcccttac	tgatacactg	cctttggtga	tagacaatga	ttcttttccg	840
aagaactcaa	aagcgcaata	tcttatctcg	tggtgatggt	gcgaaaagtg	tcgccccct	898

(2) INFORMATION FOR SEQ ID NO:911

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 628 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...628

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:911

```

cgacaggcaa tctgtttccg gcacgaagca aagatgctcc ctccgataat atcagagaga      60
gcattttcgg aacgacgttt ctgctcataa caaccggcca tgcatagtcc aacgatgcca      120
aaagctgcgc cagccgatcc acaccttgtg cagaggcttg tccagcatag gcttcacaaa      180
catattcagc tcggcagcag ggtaattctt agtctggat catcgggtgc agcctctttg      240
agctgatcca cacgttgaaa ggcattggag agcgttctgc ctccaatttg atcagtcgtc      300
ctgacgacgc tctactattc gcaaagtaat ctgccccacc ggatcactga tagcgtacag      360
ctatactgt ctataccccgt cagcttaatc ttccctcggg cagtttatcc tccatccccct      420
tgagattgga gaggtccgac atttggaata gacagccgag agaggtgctg ctatactttt      480
tatttcactt tgtattctgt catactttat ggtctatata gtttgtgtac gaagtgcgtg      540
tccgaggaga aatcagatac cccacgtctc gggactcttg cgccattccg aagcagctcc      600
acattctcgg cagaaatata gcccgctc

```

(2) INFORMATION FOR SEQ ID NO:912

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 996 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...996

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:912

```

agtctgacgt ggctaccatt acaccacagc gcataccgca ctgctcgacg gcttagcgag      60
cacaatatac acgaatcttt ggattatggt ccagtatggt ttattagatt ctctaactctg      120
agcaattcaa aaggaaaaaa gccgcggaca gatgctttcc ctttttattc ttctccaaaa      180
tagtcaactat cgagcttttc aactcataag tctgttggtg agtgcattca aggttgtaat      240
cgatcttaat tgagttagtt gttccccatc aatcaataca attttagtct cattctgggt      300
gtataagtta atgcttccct tgtaaaattt gaagttgtta taagatccct tttttggcac      360
cttgctccagc gagtgctcca acaaactttt gagctcaggt cttcctacca cattcccagg      420
cctccagcgc ttggcttgga ttaaataata tcaagtccca gtttatcttc ttttattggt      480
ccgtcaattc ctgctctcca cttttgccta atgctttacc ggcattcctg atagaacctc      540
atatccatt ttgactaata attcgacaa aagcctctca aaaaaagcgg tgaaaggta      600
atgactttat taagtaattc ggaagccaat gattttcgat tctttgatat gctttgtcaa      660
ggacctcttc aggtgtttgt tcgtgttttt ttctgttatg gattcttctt ctgtttcgcc      720
gtcatttcga taaccttctg aaattctata aacgccggaa accgtcttag gtattttgtg      780
tctatttttg gggattcttc gaaagtatct ctctgccaa gtcagaaatt atagaatcgc      840
tcgttttaggc gaatcaagaa gccacgctt ctttaggtat gtcttgccca gccaacgcga      900
ttgtcaaaaa cagcttttga gccacttgcc agagttcctg cgttcttcgt ccgtgacctc      960
aaatcggctg ccaatgttcg taatatctct ggattt

```

(2) INFORMATION FOR SEQ ID NO:913

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1914 base pairs
(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1914

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:913

gcctgtatct	gttcgctgcg	tgctcctttg	agagccttgg	cgttctgagc	tgtgcagctg	60
cttcggcagc	ctttgcctgc	tccatccttag	ccgctacgcg	ggggcttcga	tgacagcgag	120
ggtatcgccg	gcctgcacct	gctgtcctcg	gataccctaa	gttccttgat	gcgcccgggc	180
actttgctgg	acactcgat	tcggtcactt	ctatctgtcc	ttggataatc	tcctcgcccg	240
gtctggcatg	aaaaaaccaa	cgatcgtcac	cactgcgatg	actcccagca	agagagaaac	300
gccgggaata	cgatattacg	ttgtttgttg	tccgtcataa	tgaaatatgt	ttgatcagat	360
gaataacgaa	ataaggaaaa	acggtatcat	tcgaaacgac	ttcttcgggg	gagaggtgtc	420
ccgaagcctt	gcgcagcatc	attcggtcag	tttcacgtcg	atctgtgcat	cgatctttgc	480
agaccggggc	acaaccatgc	cgctctgagc	tccagtagct	tgagggccgt	tattacgcct	540
cgcggaacc	tacattggca	tagcgcaggt	tctcttcggc	tttcttcctg	tcttcgtggc	600
catgacaagt	cgtttgtctg	cctcccgtac	tttcaggcgc	tttgggagag	ctgtagctcg	660
atgctttcgc	gtgctttggc	aagtgtgtgg	ctgcgatgcg	tgccctggct	ttggccgctc	720
ttaccttatg	cgctgcctgc	cccagtgcca	gataggaact	ttgagcatca	caccacatt	780
ccactacctc	cgaatttatt	ctcgaaacca	ttgaaagagg	acggattagt	cacaaatagt	840
tggcaacgaa	ggcgagcgat	ggcagatatt	ccgatcgtgt	aaccgtatct	tctgtttgga	900
gatttgctct	aacagggcga	gactcttgag	tcgggacggg	tgctcgagggt	gtattgcagg	960
tcggtctctg	ccggaacgat	gtcgtcggca	actcctcttg	cccttcgtct	gcgaggggtga	1020
tcgtctcgtg	aggggcagtc	ctatcgtttg	gcacagaagc	atgcgcgaga	ggctaagcca	1080
tcctctacct	tagcgagcgt	catctccgct	tcgttcacct	ttaccgaacg	ttgagaccgt	1140
cggcacgggt	agccaatccc	tccttgatga	gcttctgaca	tcgttgctga	gcttcgtcag	1200
caactccaga	tagctctcgg	caaggggtgc	ttattggcca	aagaaaccac	ttgccaatag	1260
gcctgggtcgg	tagcaggatc	acatcctgct	gtccggtctt	gtgctgccag	tgtgctatct	1320
cttggcatag	cgcgatgatc	ggttgtaggc	atatatcttg	ccgcctacat	acgcggttgg	1380
gtcagggtca	gcacaccggc	atagacattg	cgggtatcgg	tcgcacggca	tcgacgaggt	1440
gtgtacgcaa	ggcgtttaag	ccctgactcg	ctgggtgggt	atctgcggca	tcattggatcc	1500
gataagggga	gccaaatcgg	atgctgggca	aggatggact	gaatagccgt	cgtgatgtag	1560
ggattctgcc	tatggctgtg	acaaggctcg	tgccgagatt	ctggagcttg	tgcttctctc	1620
gtcgctcaat	agcgatactt	ccttctgggt	gtgcaggtaa	gtaccgtggc	cgagagctcg	1680
ggcaggtagc	tggtgaaagc	ggctttgcga	gtactgtggc	cgcatttatc	ttttcgcggc	1740
ttatggccaa	gtctctgttg	tgttgagggc	aaggcgccgc	cattcgttca	cgctcagtac	1800
tctctgtcca	tatccggcca	caaggcgcat	gccaaaacgc	ctgcgataat	caatcgtttc	1860
atcctgagtc	ttatttgtct	ctatcgcaaa	aaaggggttt	cgatcggtac	gtcc	1914

(2) INFORMATION FOR SEQ ID NO:914

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 556 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...556

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:914

ggtaccctca	aaggcatagg	ggacgatgct	gccgtcatct	cattcgatga	ggcatgaaag	60
cacttgtcac	taccgatatg	ctcctcgaag	gaatccactc	gacctcactt	ataccctctt	120
caaacatttg	ggatacaaaa	gtgcgatgta	aactttctccg	acatatatgc	catgaacggc	180
acaccacggc	agctgaggtt	tccataggtg	tatcgggcacg	attctcggta	gaggatatcg	240
aacagtctat	cagggtatcc	tcacgginctg	cgatgcctac	ggcgtagacc	tcgtggagggc	300
gatacttcgg	cgtcgctcac	cggattgtgt	ctgagcctga	cctcatcggg	gaggcacgag	360
aagaggaaat	agtgtatcgc	agtggagcca	aacgaccgat	ctgatctgcg	tgagcggaga	420
cctcggcgca	gcctatatgg	gctccagcta	ctggagcgtg	agaaagcggg	ctatcagggg	480
gaaaagactt	gcaccggatt	tcgccggtca	tgagtacata	ctcgaagaca	gctgaaaccg	540
aagcgcgcaa	gacatg					556

(2) INFORMATION FOR SEQ ID NO:915

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 595 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...595

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:915

gggactgac	aacgacgatg	atatacctccg	gagcaaagtt	gtctactagg	ttacagactg	60
ggttgatg	atcacctgcg	actgcagaga	aacactctga	taagagctgc	gagtttattg	120
atcgccatag	ggtgtaggcc	aagctcagct	catcaataat	aatgctccga	ggtggctcag	180
gctgaagcaa	aagcgtgcaa	gacagatgaa	gcgaagcgtg	ccgtccgata	gctgataggc	240
gttgaataga	catcctccgn	cccttttttg	ttccattcta	gctggatcgt	actccattaa	300
gacgattggg	cataaggtta	aaaccctcaa	agaatggagc	aacgagcaaa	ccgtacgctc	360
tatgcgatag	aagtgccttcg	ggtgcttttg	ttgaggtaat	acaagaaagc	tgcgatattg	420
gcaccgtcac	gcctaaggct	agattgtcat	ctacacgaca	tagtgctttc	ataggggatt	480
gattcctgtg	catggaagtg	gtagatcttc	aatgcttggg	tcagttcatt	aacaaaaatag	540
cctgtcccca	attgtaatgt	taaaggagac	tcattctacat	cgcgctcaat	tcacg	595

(2) INFORMATION FOR SEQ ID NO:916

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 532 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...532

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:916

```

gggacggtac aggcataata tcttcttcgt ttagatgaga ggagagtaca cctccaaatc      60
gccttcgggt tgtcctccct ccacatcgtg aaaaaccaag agaggtcaat ccatggatct      120
cccgatacta tccactcgcc taaaagcacg atacgacttc atacaaagca tcggcttttt      180
catttggtga aagcaagccg ggtaggcccc tgccatacct gacgcattga agagtttcgt      240
ccacgaaagt atgtgacaag atggcctatg gaaaggtttt cagcatggac attagctctc      300
cgaaaacgat aagctcattg tcttgcgat caagtcatca ttcgcttgge attaggcgat      360
atgtacaagc agtctacagc aaatacagcg gaacaggctc cgcaaagcga gtcttttcggt      420
tcgccggact aagagcaaaa gataagataa gcaattgtgc agtcagcacc ctcaagaaca      480
tggtcagagg tagaccgtgg cgtagcctac ggccggagca tcngnggttag tc          532

```

(2) INFORMATION FOR SEQ ID NO:917

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 571 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...571

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:917

```

ttcccttcgt tgagtaatag cggtatgttg tgccgtgctg caacagccgt tcatcatttc      60
gctcgatata tatgccttgg gatgcttttg acatcaagct atgaagtcga tgccgagtc      120
gccggtcaga tccaccactt tggtcctctt cttatgaaac ggcttttgta cgaactcgtg      180
acagctccgg aggattctcc aaagaaagcc gtgaaggaaat atacaaagaa ctgataccgg      240
cccacgaggc agcttggtcc tcagacgagg ccaaagttct atctgggtag ccacgcagcc      300
cgatactccg gaggaatata attgctcccc aacagaattc tgtgggtgat tggttggcat      360
agagcttaac ccatcgcgta atggcgagaa tccttttttc gcgaatagca tcgtccgtac      420
gtatactgaa agagggaacc ctcgaatgga ttccctcaga gactgtgtga ccgcgacagg      480
attcaaacct taaccggctg atccgtagtc agctactcta ttcagtgage tacgcggcac      540
gcaaaagctg aacattgagg agaaaaagtg a          571

```

(2) INFORMATION FOR SEQ ID NO:918

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3864 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3864

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:918

gacaaagcgg	tcatactatt	tggaatgcc	taggcatagc	aaggacgtcg	tcccagaaa	60
gagctttgta	tcggaagtca	tcactgaaaa	agcatcgggc	aatggtttgg	gattgatata	120
gtccacaata	attccatatt	gaaggggttt	tcataattggg	cattgagctc	taaaatgccc	180
aaatcttcga	ttacttgaca	agcttacctt	gctcgggcca	cgggccttcc	gcaaaataat	240
aattcggcga	taaacttgtc	gaaccaaata	acgccaccg	acgttgattg	tggattttca	300
atgaccgttg	tcgtcccatg	agaaaagccc	tcgacggctg	tacttggttg	acgggaaggg	360
gtataacgtc	gccaacctct	gctgtgagat	caagagcagt	cgcaagccgt	cagactctac	420
aacataggcc	ttacctcctt	tctatatagg	taaaaaggct	ccatcggggg	ctcaagacct	480
gtccaatctt	atgaaccact	tgtatctctt	gagcttggtg	ttcgccctatt	tggatattct	540
ctcgacacga	tggcgggatat	acccgaaaata	cgaaggcgag	tcataactgt	tttttcactt	600
gtgtggtaat	accatgtagt	cccaagagga	taaagcagat	cggatcctcc	tgtttatcac	660
tgtttttctg	tcacaaaagg	acacatcgcc	gaggaaaaaa	acgtctcattg	ccaataagct	720
tcttctgtaa	aaattttttt	catactgcaa	tcattttattt	tcacaaatcc	ggattcatta	780
atataaccac	ggctaagata	caaattttatc	gggggtgcata	ttccccctcgc	acaatgcaat	840
aggagggaga	tgcaaaaggca	agacgcgaga	agctcgacac	ataaaaagcg	gctctgcttg	900
ggacggacat	atctctcata	cgtgccgctt	ctcttacaga	gccgcttggt	tcaatttgga	960
atcaaagcca	taagtggctc	gattatttca	attagtccaa	agacccacgg	taaagttgaa	1020
gccacatgc	cgatgtggtt	catgcgagga	gatagtgtcg	aaagcggctt	atttccatca	1080
gcttgaaatt	acgatacggg	tatagcaggt	tcagatactc	atagcccggc	tgaaccggag	1140
gcgaaaatca	tatttgctct	tgatgggcat	tttccacaaa	tagaactttt	gagtccgac	1200
cccggtgaaa	agccattgct	cactgggcaa	catcttcgga	ctgaagtaca	aggtcactgc	1260
cagctcttgt	gtagtgtcat	agtggacctt	gctcttggtg	atcggtgaga	aaagaatatg	1320
ggctcatttg	tccatcccca	atacgcctcc	agatgcttgg	tataggatat	cccaaactga	1380
tgaggaagcg	cccgagagct	tttttgtaaa	aaaagtcttc	tcgtcttcga	agactattac	1440
cttttcaaca	ataccaatga	tacttgggac	ttcgtataca	tgagcttcgg	acttccggcc	1500
tcttcccagt	gtgctcttct	tcattgtattc	ctaccgaaaa	atccaaccct	tcgggcagaa	1560
tgctgtgggt	accctcatcc	gtatgctcat	gtccatgcgg	aagatattgc	caccaaacca	1620
tttccggccg	tgccgaact	gaaagtggta	gctgcctcaa	tgctctgata	tttaacttcg	1680
attgggcatt	ggccgagaca	cccaaaaaca	ggagtaagca	catatcgatc	ctgtcaaagt	1740
agtttttttc	atttcagtga	tttttttggt	ttatcgattc	taaatgggag	qgaaggtatc	1800
aaattattaa	atgttgacgg	agccggattt	ggaggaanaa	atttttttct	tgcagttttc	1860
tcttttctcg	ggcgtgtttt	ctggattgta	cgaagaata	cctacatttg	cctcgacaga	1920
ccgctacggg	ggtgcttgcc	ggcaagaatt	gcgatacggc	ggctgagata	ataccatag	1980
acctgatccg	gataataccg	gcggagggag	tagaatcgaa	tacacactat	gcgtgccagc	2040
agcttcggga	gaagcaccga	ttgtggacgg	tcaaccacat	gtgaaagaac	agatattatc	2100
cctcaaagca	cgcaaatgca	agttactatc	aacaaccaac	cgatcacatg	cctcgaggta	2160
tgggactggc	tgccctcttg	gaagccgagc	ggatccaagt	ggagccacgg	ccatagccgt	2220
aaacggagaa	gtcgtacccc	gtgcctcgtg	gccgacttcc	gtctgtccga	aggcgatgag	2280
atcctgatca	tccaagccac	ctagggggct	gaccgacgta	ccttcagctt	caaggcgata	2340
gtctcaaaa	agaaaaaccc	aaacccatta	cccgatgtat	atgaaagaat	tcaaagtgac	2400
tccggtcctc	tgcccggcag	tgagaaaaatc	tatgtcgaag	gagagcggtt	cccttcttgc	2460
gcgtaccgat	gcggcgcatc	cgaatgtccg	acaccatatt	gagaacggcg	aacgtgagaa	2520
aaacgaagat	gtagtctgat	acgataccgt	ggcccctata	ccgatacctc	ctatgagggtg	2580
aatctgcacc	gaggcgctcg	aagatacggc	agcagtggat	agaggatcgg	ggcgatacgg	2640
tgccggccgaa	gggtcagct	ccgaatacgg	acggataagg	cagtcggacg	cttcgtcgaa	2700
aagctgcgtt	acgagcatgt	gtgcacgcgt	ccccgtgccg	cgaagacggc	tgtgccacgc	2760
agctctacta	cgcccgtcag	gggatcgtga	cgggagatg	gagttcgtgg	ccatcccgga	2820
aaatcagttg	atcgatcagg	tcggacgcgc	tatcgcgctg	aggagggtga	gccgctcgga	2880
gctgttatcc	ccgcaagatc	acgcccgaat	ttgtacgcga	cgagattgcc	gccggacggg	2940
tatccttccg	gccaatatca	atcatccgga	aagtgagccg	atgatcatcg	gcgcaatttc	3000
ctcgtcaaga	tcaatgcgaa	cataggcaat	tcgcccatag	cagtaccatc	gaggaagagg	3060
tggaaaaggc	cgtctggggc	atacgcgtgg	tgccgatacg	gtcatggatc	tctccacggg	3120
ggatcatata	catgagcgcg	cgagtggatc	atccgcaatt	cgcccgtgcc	catcggcact	3180
gtgccctcta	ccagacgctg	gagaagggtg	agggcgatgt	gacgaagctc	aactggagat	3240
attccgcgat	acgtctcatcg	agcaggccga	gcagggtgtg	gacacttcac	catccacgcc	3300
ggctctgcgtt	ggcaccacgt	gcctctgacc	ttcgcgcgct	cacggggatc	gtctcccgcg	3360
gtggttccat	catcgccaac	tgtgcaccac	ccacaagcgc	gaaagtttca	tctacgagca	3420
tttcgaagag	tctgccaat	cctcgcacgc	tacgacgtag	ccatatctct	cggcgatggg	3480

tgcgccccggg	ctgcatccac	gacgccaacg	atgctgcgca	gatagctggc	tgaagacgct	3540
ggcggaactt	accgagatcg	cttggaagta	taacgtgaaa	ccattatcga	aggaccggga	3600
cacgtgcccc	tgcaacaagat	ccgcgaaata	tggagattca	actcgaagcc	tgccatggcg	3660
caccctttcta	cactccggcc	cgttggtcag	cgacgtggcg	tccggctacg	accatatac	3720
atcgctatcg	gcgcggcaca	gatcggatgg	ttcggcacag	ccatgctctg	ctagtgaacg	3780
aaaaggagca	tttgggtctg	cccaaccgcg	aagatgtacg	tgaggtgtag	taacctatag	3840
actggctgct	catgccggcg	ggga				3864

(2) INFORMATION FOR SEQ ID NO:919

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 968 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...968

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:919

tttgtcctca	aattcgacgt	tttatccctt	tggcctgac	aaccagattt	agcctactat	60
ggccgggaag	aaggtgctct	aaagcgggat	tggcgagaca	ggcatcttc	acagcagccc	120
gtgagatgga	taggcaaacg	cttgagcaga	agaagagaaa	gagggtttgc	ccaagacgaa	180
tgccgaggat	tatcagtcgt	gatcaagctc	gactttaccg	acttggccat	atccgtattc	240
atcaagagca	gagaaagaca	tcagctaagg	atatgcagcg	gaaagaggct	actacctcag	300
tgatatgttg	gatatgtatt	ggancaatat	ccctccgagg	gagaaatagg	agataaggat	360
acggagcaaa	cgagaagcac	tattcgtgaa	acaacagaaa	gaagagaccc	atccaggatc	420
tctacctctc	ctgtgcccaa	gggataaaga	tttgacggag	tctcattata	tccatttggg	480
cacgctggac	atgaaagcaa	gactacggcg	aggattgcag	cctatccggt	gaagaacggg	540
ttatcgataa	agagcgggtg	cgagaagtat	cgactcgtcc	ctacaaaactc	tttccgtcaa	600
taaaaatctg	gctactgcaa	aacagatctt	tatttccatt	ccaaagagga	tcagactgaa	660
ctggagacct	gtctgcaatt	tttcaaccct	tggagaagaa	tggtcagatc	gagatctact	720
atgataagtt	gactagtttg	aaacacctat	tcaccctgaa	ataagaaagc	gtattgtcga	780
agccactgta	taatcgcttt	gacagcccaa	cgctatcttg	ccacggatta	catctggatc	840
atgagttgcc	tgtatttcgg	gagtataaca	agaccatagt	gcgatattga	tcaagccttg	900
tacattcgaa	gaccatgagt	tccttcggag	atatttgctc	agaaagctca	aataatcaat	960
cttgaaag						968

(2) INFORMATION FOR SEQ ID NO:920

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 696 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...696

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:920

gatctccctc	gaatcgatca	atagtcgtgc	atagccacgc	gtgcaaacaa	aaagagcatg	60
gattcgaaca	ggaacggcgt	agccacagct	gcagccggag	ggatcgcttg	tcattgcaca	120
gcaagaccgc	gtctccaagc	gtattcattt	accccccaag	tatcctgcaa	gctcattgat	180
cgagaatacc	tttagcgaat	agtcataaaa	gagaatttag	agataggaaa	ctgcatcgaa	240
tccattgccc	gtcgcgacgg	caaacatccg	agactgttta	gtaccgatac	cggtgtataa	300
cgtacgagag	catggctccg	gctcttccca	ttccggagca	aaaccattcc	ctctttcaat	360
agcgtcgctt	gccgaagatc	gtagtccoga	tagaacgatg	gtgcttcctt	cttcgatggc	420
cagctcgaaa	tcgcccgtca	tcccatcgaa	agctcacaaa	aatcagcaga	atcggagaag	480
aaacgctctt	catctctctg	aacagcgatg	ccaaccggcg	aaactctctg	cgaatctgcc	540
cctatcgctc	gtaaatgtag	ccatccscat	cagaccggca	atcttgaccc	ggtatcggag	600
ccgcgtgcc	aaacagcctc	cagaacttgt	ggcaattctc	cggcgtaaag	ccgcttttg	660
tatcctccga	tgcgatatgc	acttccataa	aaccgg			696

(2) INFORMATION FOR SEQ ID NO:921

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2843 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...2843

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:921

tgggtacggg	caagaccact	ttcatcaaa	ccgatgcca	ggagctgggg	tctcggacgt	60
tatcaatagt	cccacctttt	cgattatcaa	cgagtaccct	cggtacagac	gggcgaactg	120
atctatcact	tcgactgcta	ccggctcaca	agatagaaga	cgccctgaat	ctgggtgtag	180
aagactattt	cgatagggtg	gtctctgctt	tatcgaatgg	ccggagcttc	tggagccgat	240
actccgaacg	atacgggtca	tgccgaatc	gaagagctgg	aagacggcaa	gcgcggctta	300
cattctaatg	cctgctccga	tgctgttcgt	cattcgggac	ttcatctcat	cctctttgcc	360
atagtcgggc	tggtttcgct	actgactgct	ctctctgtcc	ggattggcta	ctgagcagcc	420
gaggcgcacg	catttggtatc	atgccttcgg	caagcgagcg	gcacgtatct	tctatattat	480
aataggagtg	ccttgctgag	tgctgcggct	ttcgggctga	tcaaactctg	aaaagtgtct	540
gcagtaaaat	cgtcataata	aaagagaccg	cccctgctca	gcctcatttc	gtatattcct	600
tataacctct	tcaaggggaa	acctctacct	ttacgggtga	atcaatttca	gaccgatgga	660
ttacgaaata	gagaacaacc	atgccgcagt	attcgcaggg	gaagtatcga	agtgatatgc	720
ggctccatgt	tcagtgcgaag	acggaagagc	tgctacgccg	tctgcggaga	gctaagatag	780
cgcgagacg	gtggagatat	tcaagccgac	catcgatata	cgctacgacg	aaaggatgtc	840
gtttcgcatg	acaagaatgc	tatcgcttcc	acccccgtgg	acattcggcc	aatatactgc	900
tgctatccct	ccaagtggat	gtgggtggga	tgacgaagcc	cagttctttg	atgagggtct	960
tgtggaagta	gcccagcaat	ggccgatcag	ggtgttcgcg	ttgtgatcgc	cggattggac	1020
atggactttg	acgtcagcct	ttcggacctc	tgccgggctt	gtgtgccata	gccgactcgt	1080
gaccaaagtt	catgccgtgt	gtgtggaatg	cggccgattg	gccagctttc	tttccgtcgt	1140
gtccaaggcg	atcagcaagt	gatgctgggc	gaactgacga	atacagtcct	ctctgcagaa	1200
cctgctacag	gaaatgcagt	tctccccaca	aacagaagaa	atccattcga	caatatgaat	1260
agcagacatc	tgacatcaca	atcattgccc	gcctctccct	ctttgtactg	acattgggcg	1320
gctctccgta	gcccacaacg	atcgcagtg	gactctcggc	ggaaagctct	ttcttcggcg	1380
tggatacaac	gttcggccga	atatcaagcg	ctttgcattc	agcatacaac	atcgctacgg	1440
aaagagtggg	cgctctaccg	gcagaacgta	acaaggagat	aggccttatg	ccatcgtaac	1500

ggacatagac	gaaaccattt	ggacaatacg	cctaactccg	tgtatcaggc	tctcaggggc	1560
aaggattaga	tgaagagact	tgggggaaat	ggtgtgcaca	ggccgatgcc	gacacacggc	1620
aggagctttg	tctttcttcc	tccatgcagc	gaacaagggg	atcgagtctt	ttacgtcacc	1680
aaccgcagag	acaatctgcg	cgaagcaact	cttcaaact	tcagcggtac	ggattcccct	1740
ttgccgatga	agaacatttg	cttagaccca	tggggccatcc	gacaaagaac	cccgtcggct	1800
caaaatacaa	gaaagtatga	aatagtattg	ctcataggag	acaacttggg	cgacttccac	1860
cattcttcaa	tacgaaagaa	gagtcgggac	gcaaacaggc	tctgggcctg	aagccgggga	1920
gtttggccgg	cacttcatca	tgctgcccac	tcccaactac	gatcttggga	accggcatgg	1980
tacggcggga	agtatccgcc	actgcccgaa	gagacaaagc	acttaaaca	ctgcactcac	2040
agaacagcag	atagctccta	agcaaacaca	tcgaatagac	agactcacac	tatggacaac	2100
aaacgacaag	caaaatagaa	agactgctcc	agaaagaact	cagcgagata	ttcctgggga	2160
tgcgaaatcc	ctgccggggc	taatagtttc	ggtaacgaac	gtacggtaag	tcccgcacct	2220
agcatcgcac	gtatacacct	gagtatatcc	ccatcgagaa	gagcagcgag	attcttgaga	2280
gcatcaaaaca	caatacaaa	acgtccgtta	tgacctcggg	cagcaagttc	gtacccaact	2340
gcgcaagata	ccgatttgac	attctacata	gatgactctc	tggattatct	ggagaatata	2400
gccgtttgct	caatcaataa	gaaacggtcg	ctctctatca	agacgctgtg	acttcccttt	2460
tttcatagcc	cgccgttact	tgttctccc	caaaagatta	gtgcgggtcaa	tgtgggttcg	2520
ctcgtttcag	cgatagctgt	ctgcgtggct	cttcggcctt	ggtttgtatc	ctctctatct	2580
tcaatgggta	cgaagcttga	tcataagcga	ttcggcagta	acggatcccc	ctcttatgat	2640
tcgttcgcag	acaattcgc	gataaaggca	gatgataaaa	ctctgctcac	agctccgaag	2700
cggaagggat	cggttcgtac	agctttatcc	tcaccggaga	aggtttgtaa	agacgaagta	2760
tcgacagcag	gctgtttctc	tcattgggtgt	ggagatcgct	atccccgcac	tgtgaagata	2820
gactccatcg	tctttgcagg	caa				2843

(2) INFORMATION FOR SEQ ID NO:922

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 568 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...568

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:922

aaaccgaaaa	gtttacgcgc	cacgtttttc	ggtactgcga	atgatctttt	tttcgcgcgt	60
aaatgccaaa	gactgtcggc	ttcgaggtac	agatcgaatc	ggatcgctct	ttcggagctg	120
acagtctttc	ttctccgaga	agaaaaagga	acctgtggga	gtcgcctcac	atgggttttc	180
ttgctatttt	tgttcgattc	ggattccatc	ctaagaggac	gaccaacctc	tgattgcact	240
cttaaaatcg	tatacatgct	gatgacggct	gccgtcagtg	ctgtcattat	cagcagaatc	300
gcaatccact	gaaggctact	tcgtggattc	tggctcgtct	tttgtaccgc	tcttggggct	360
tattgtctat	atctttttcg	gacaggatca	gccagacggc	gtattgtcag	ccgccgtata	420
tacaagcgca	tcattgctgaa	gctcactatc	tgtccatccc	cgaagcacag	ttggaagcca	480
tgaacaatat	cagctgaatc	ccatcatgaa	gctgatcaac	aacaactcgg	acagccccgc	540
atgctcagct	cgccgcggga	tatattca				568

(2) INFORMATION FOR SEQ ID NO:923

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1433 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...1433
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:923

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atgtcttcga ccggtggcccc ggaagcacat atcatcatgg atacccttat gaagtatcat      60
catttcgata tacagtgggg caatcatgac atgctgtgat ggaagctgct gtgggcaatg      120
cctcctgtat ggccaatgtg gtgcgtaagc actgcgctat gccaatttgg atacgctgga      180
gagcgggtac ggtatcacct tttgcccttg gcgcgttttg ccatggacac ttatgctggac      240
gatacctgtac cgtattttaa cccaaactgg ctccaggcga ccagacgtat gatgcaagag      300
cgtctatctg atcagtcaga tgcacaaagc catatctatc attagttcaa gctggagcac      360
cagatcatag cccgtcatcc ggagtacaag atgacaatcg ggatttggtc catctggtga      420
acttcaccga tgggtaccatc agctgtcgag tggcgtatat ccgatgttgg atatgaattt      480
cccgaccgtg atccggccga tccgtatgca ctgacagagc aagagcagaa tatcgtagac      540
gtctgatggg ctgtttttatg cggagtgaag agctgcaaaa ccatctcaat gcctctatcg      600
tcatggcagt atgtacctga cgtataatat gaatctgtct accatgcttc tatccctctg      660
aacaaggata agtcgctcaa gaaggtcggg taggggacaa gacctatgcc ggacgcgaat      720
tgctcgataa ggtggagaga tgatccgtac cgcatatgtg gctcccgaga aaagcgatca      780
gagattgcgg ctgtggacta catgtgggtc ctctgggtgc gaccggattc tcccttttcg      840
acaaagctat gatgactact ttogagcgtt acttcatcga agtaaggcta cgcacatcatga      900
ggaaaagggt tactactacg tctatcgtca gagaaagccg tttgtgagat gatcctcaaa      960
gagtttgggc ttgaaggccc gatacgcata taatcaacgg gcacgttccg gtgaaggcca      1020
agaaaggggg ctctctatcg gagctgaagg caaactgatg ttgatagatg gcggattcgc      1080
aaggcatatc agtcaagtac ggggatcgcc ggctatacgc tgatattaac tctcagggat      1140
tgcactctgt gcagcacgaa ccgtttagtt ccacaccaag gctatcgaag agatggagga      1200
catcaagagt atcacggttg tacgtaggtc acatcccatc gtatgctggt gaaggatacg      1260
gacaatggcc actcttgagc aagcagggtg aaaaacctca aaaactcctt caggcgtaca      1320
gctcggactg atcaaggaac gaaaaaata gcgtggtgaa agagacagga gtgctttaat      1380
ctcggattat ggcgagacgga tatgtattcg ccttcgtctc catgccattt gct      1433

```

(2) INFORMATION FOR SEQ ID NO:924

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 786 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...786
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:924

```

gcttcttgaa tgccctccaaa gcctccggct tgtcactgtc tatccagcag ctttgtacag      60
gctgatcggg tcccaacgac actgcgtccc gtattcatca gcagacggta ttggatcact      120
tcgaactgta gctgccccac ggtcccgtaa tcttgcgccc gttgaactga ttggtgaata      180
gctgtgccac cccttcccca tgagctggtc gatccctttg gccagttgct tggctttcat      240

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cggatctgat tttcaatgta cttgaatagc tccggcgaga agcttggcaa accgggaaat 300
gaagctcttc gccggctgtc agcgtatctc caatctgaaa attccggtat cgggcagacc 360
gataatatca ccggcatagg cttcatccac cgctccttgc gctgcgccat aaaagccgta 420
ggactgctga atcggaaactg ttgccgaggc ggatatgctt gtagttcgta tttcgttcga 480
accgaccgga caaatcttga cgaaagcaat acagctgcga tggttgggat ccatgttgga 540
tgtatcttga aaacaaaacc cgtaaattcc tcctcgtgcg gatccacttc ctctccactg 600
cagccaccgg ctggggagaa ggggcaatct cgacgaacag ttcagcagct cctgcacacc 660
gaagttgttg agtgccgaac cgaaaacacc ggagcaagct gtccggccag atattcctct 720
ttgtcgaaag gctgaaaaca ccatcgatca attcgatgtc cgnacgcaac ttctcagctt 780
gagttc

```

(2) INFORMATION FOR SEQ ID NO:925

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 581 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...581

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:925

```

ggtggccgaa taacatctgc cgaaaaaac actgtgccc agtgcaactcg tatgcttccg 60
ggacagtaca ttggaaaacg aggcctcaaag gtacatcttt cgatggcttc ggcatagtgt 120
tcgttgatca ctgcctttt gagtttctcg tctcggtcag ttcgcccttc tccagtgtaa 180
aaggctcggc gaggaggtaa tgtacttcac cttctcgtaa gcagcaagcg aatcttgtgc 240
agccttattc tggccatcat caggcggttg atttcaggat ttgcagccat ctgcaccag 300
acattgtccg ggcctgttca agtccccttt tgatggcagc ctgcttacca attcccaatt 360
cggatagacc aaggcactca catacttgaa ccgtcaccta tcaccgctat ctgttcgatg 420
atgggatcct tggtcagcat ccctcgatca tctgcggagc tatgtacttt ccgttggcag 480
tcttgtacag tcttttatcc tctccagaaa ataaagcgtt ccatacggat ccatgcgttg 540
gcattcgccg tacggaaata gccgtcaggc gtgaaggctt c 581

```

(2) INFORMATION FOR SEQ ID NO:926

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 970 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...970

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:926

gaataatggtt	attaaagggtt	gataattcag	tatcaactga	cggatgata	tcgatagata	60
taattgaata	atagaaaatc	tgaaagaaaa	atccgcttat	atcgacacaa	caatggagga	120
gaatcttttt	atgtaagcca	tgctttgcct	aatagcatga	gtatgagggtg	gaagtggcaa	180
aaaaaacaaa	atcggcaaaag	agagggaaac	agctctcttt	ggccgatttt	gtcttttcgg	240
taataaacaa	agtcttttta	tagaccgtgc	tcgccccaaat	aacgctctgc	ttcgtagcag	300
ccttgcaacc	tgatccggca	gccgtgatag	cctgacgata	gtggggtcgg	caacgtcgcc	360
ggcagcaaat	acgcggggaa	cttttgtgcg	cgggacgaac	cttcgcgtcag	gatataaccc	420
acttcgtcca	agtcgaggta	gcggcggaaga	tcttcgagtt	tggcgtatga	ccgatagcga	480
ggaaaaaac	tcgatggcaa	tgccaccat	ctcttcgtcc	ggctctcctt	tgcgtttcac	540
agatgagcac	cttcacacac	gttttcgccc	aatagacca	cggatttagt	tcgaagagaa	600
cggttatggt	cgcggtatct	atcacacgct	cctgcatacc	ttggaggcac	ggagatagtt	660
cttgcgtagc	atcaggtaca	cgtgttagcc	agcgatgcca	gatagagagc	ctcctcgcaa	720
gcagtatcac	ctccgccact	acggctactt	tcttcttgcg	atagaaaaat	ccatcacagg	780
tagccaagca	gaaacaccca	tgccggcata	tttggcttca	tcggccaagc	ctagtatttg	840
gctgtggcac	ccgtggagat	aataagcgta	tcggctgtga	ttccttttct	ccgtctatcg	900
tgatcctgta	aggagccttg	ctcaaaccg	ctttgtagcc	gatacccgaa	cgaatgtccg	960
ttccgaagcg						970

(2) INFORMATION FOR SEQ ID NO:927

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1332 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1332

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:927

tttataaaaa	tgagacagca	tttatctcta	tttcctttta	tcttgtttcg	cttcttgcct	60
tctcttatgt	cggttgcaga	acagtcggac	aaacacctag	cagtcggaac	ggtacgtcgt	120
agtcctgtct	ttggacggct	tccgaccgac	tataccgatc	gggcacgtac	accggcggtg	180
gatcggatgg	cacaggggga	ttgagcgggt	cgctccaaac	atgcttcccc	tcgcttacat	240
ttcccatcat	tacagcatgg	ctacggggct	ttaccccgat	catcacggta	tcgtgccaat	300
gagtttgtgg	attcgctact	gggcattctt	cgtatatccg	accaaagcc	gtggagaccc	360
ccggattttg	gggcggcgag	ccggtttgga	atcggccgca	cgccaaggca	tccgtaccgg	420
tgtctacttt	tgggtaggat	cgaaacggct	gtgaacggaa	atcggccgtg	gcggtggaaa	480
aaattctctt	caccgttccg	tttcgtgacc	gtgccgactc	cgtcatcgcg	tggctcggat	540
gcccgaagag	gagcgaccgc	gcttgctcat	gtggtacatc	gaggagccga	tatgatcgga	600
cacagccaaa	cgcccgaag	cccgtgaca	ctggcaaggt	agagcgggtg	gacagtgtgg	660
tcggctattt	ccgcaagcgg	ttggacctct	gcccatagcc	gcacagaccg	acttcatcat	720
agtatccgat	cacggatggc	cacgtacgaa	aatgagaaat	gtgtcaatct	gtcgatttat	780
ctgctgcgga	cagtttcttc	tacatggcca	ccggggcctt	cacccacttg	taccgaagcc	840
ctcctatacc	gagcgagcct	atgagatcct	gcggggccatt	cccatatata	ggtttaccgc	900
aagggggagg	tgcccaagcg	tttgcgctgt	gcaccaatcc	tcgtttgggc	gaactggctg	960
tgattccgga	cataggctcc	ccgtcttttt	cgcaataaat	gaagacgttc	gtccgggagc	1020
ggcacatggt	atgacaacca	agcaccggaa	atgcgggctt	tactccgggc	tgtcggaccg	1080
atttccgtcc	gggcagtagg	gtggaaaacc	tgccgaatat	caccatcata	cgtctatatg	1140
caggctgttg	ggtatagagc	ctgcacccaa	cgatgcgacg	aaacgttgct	gaacggcctg	1200
atccgagaca	aacgaccatg	atcatgcaag	ggaaaaacgg	cgcaacaata	tcgccgagta	1260
cgtcctctac	atgtgcagat	agaggatctt	atacgtgcca	acgactgga	tatgcagcgg	1320
cttgcgccac	tg					1332

(2) INFORMATION FOR SEQ ID NO:928

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 453 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...453
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:928

```

gctccttgcg agcattctcg tgtttggctc gatggcattc gcccaagttc caaaggaaat      60
gacaagtcta aagacgaaca catccttacg tgggcgttcc ggaagagttg gtgatcgata      120
ataacagtat tgtagctact tataattttt attgactcca tttaatggaa tgaccatggc      180
ctgcgcttct ttcttcatgt gcaggatttg ttgccttatg tgggctatac gatcaataga      240
atagattcca ccctacggca gatgagaaga actatgagca ggtggcagcc agcagttcta      300
catctgtata tggggcaata aggaacagac agaagtcctg tacagcaggc tctgcccacg      360
atccacaagg aggatttgag ctttggctat ggggtggacg cgaggaagac tattacgatg      420
agccgatgta ccttgccgaa cggaaacgcc ctt :                               453

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(2) INFORMATION FOR SEQ ID NO:929

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 395 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...395
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:929

```

caaaccggcc accacattgc ccatcatagc gaagtgahta tgcgcccacg accgagcctg      60
ttgcccagat aatagcgatc ggccacattc ataccgcca atagcctatt ttaccatcta      120
taacggctac ctccgggtga ttgcgggtgt tacgcggctg gacagtatgg ggaagaagac      180
cggcataaaa ggatagcttc cactccggct cggcgcagtc gtttccagta gccacggccc      240
gtagccacga accacatga tcgaatatga ccctcacctt cagccctct tgcacttgcg      300
tataagcaga tcggacaggc gactgcccag atggtcatcc tcttgacgta gaactgaata      360
tgcacatggt ggcgggcagc ctctatgtcg cgaag                               395

```

(2) INFORMATION FOR SEQ ID NO:930

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1035 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1035

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:930

aaggccgacg	tgtgctgaaa	anggccggaa	gtcgganagg	ttaatccgac	cttgtggtat	60
agaaagagtc	ggtattgtac	cggactcttt	cgggtttatc	ttgccttaat	tctatcgttg	120
tatgaccaat	ccgggggttaa	agagccataa	tcaccaaact	attcgacgag	gatttcggga	180
tgccacgatg	atgaagcagg	ataataaagc	aatcggggca	acatcggaga	gagagaaaac	240
ctctcccatg	ctgcccgat	ctgtttgtta	gtactcgcgc	gtcgttattg	aacgtcactc	300
tttctgtaat	atcacccgatc	tgcaagagga	aaacgccctt	gagtggctga	tatctatctg	360
ctggaagatg	ttattaagcg	taactctgta	aaaatctgtc	cgttcatatc	tataagagat	420
gccactttgc	ctaccatttc	tccgggtatct	ctatcgtcaa	atcttttgat	gtgggtatgg	480
gatagacatg	aagcctttgg	tgtcgacttc	tctacggca	ttgctcttct	tcatacagggt	540
gtcactttctg	tatctttctc	aagaaggaaat	tcatacggag	cttcgatatac	tctccgttca	600
ccattacctt	gtccacttcg	taaccttcgg	cagggatgga	tgtattttaa	tacgacggcc	660
tgccactaat	gtggaaccgc	tgttcagggc	tgcccatcgg	ccgttagctt	tatctctcca	720
ttttcgggct	ggatgccact	acggaatata	cagagatagg	ttcataaaatc	gcttccactt	780
cattgtagat	tctttgacta	ctacatgagt	ataactgttt	ttgaagggta	gtctgaaaaa	840
tccacataat	ctttaagtcc	gaaatatact	aaatctgcta	tgaaggcttt	gggaagaatg	900
tctctgaagc	gagcatttct	ttgtcgtact	ctagtagtac	cagaaatcgt	cacgcccggc	960
tttgacaata	tccattcctt	actgtcgtat	tcgatatatca	attcaaattc	gttcaaacct	1020
gtactggccg	ggatc					1035

(2) INFORMATION FOR SEQ ID NO:931

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3390 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3390

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:931

tgccgggttca	tgccgtgcaat	cgatcaggac	aagagactgg	aaagctgctg	cgacagagga	60
tgtacgtctc	gatgatcctg	cgcaaggatt	ccctgttgac	gcaaccaaac	gggcatatcc	120
gtagccgggc	aaatcgacca	gataccagaa	togtccgatga	taaaatgggt	gatcagctgc	180
gttttgcccc	gcttttgagg	gtcatggcca	gtcccttttg	gccggtaagc	atattgatca	240

gagagatttg	cccacattcg	aacggccgat	gaaagcatat	tccggggagcc	tccgttcagga	300
catttgcgca	catcggtatt	actgattaca	aatgccgcct	ttttatttcc	attcggttct	360
gtcgttattt	atatacggat	agccgtacaa	tattatatct	ttgtgacata	caaagatagc	420
tttcttttac	cggttaagcc	taattagaat	atgaacaaat	cgcttataat	tcttatctat	480
accctcgttt	ggttttgctc	atcgctctgc	aaagtctggc	attggagagc	gccaaccccg	540
cacccccctc	ttttggaata	cgccctccgc	ttattattcc	gtatggatgt	tgatgcctat	600
atcatagccc	tgtactatat	caattatttt	ctgatagccc	attcatgata	aagaggcacc	660
tctttcgtcc	ctatatacgt	ctgtcgtggc	cttgggcgga	ataggcatgt	tgcttcccgt	720
cgtcttccac	cacgctggca	atggactgta	ccgggcacgt	ccgaaggaca	gatgcctctt	780
tacgggaagg	cttcatacgcc	tccatagcgg	ccatagccgt	agggctgtcc	gtcgcggagt	840
ccgcgagtgg	gtgcgtctgg	ctcgtcggaa	taccaatctg	gaatagcact	caagaacaag	900
tccatcgcat	acgatcgtgc	cgaagcgcgg	cgcgttcttt	ggaacagccg	gtttctttcc	960
acaacccccg	cacgggagcg	aagcggaaaa	cgcaccttcc	tctactcctg	tcagtcacaca	1020
aacaaacgat	agtcattgca	aagaaaacgt	ccaatcccta	ctacaaagtc	agcaggcgaa	1080
gttcagcaaa	cgaaattccg	gacgcagata	ttcgagaaag	aggagaaaaa	cggacggcga	1140
cgagggctga	tgatcagcct	gctcctcctt	gtcgcctcgg	tatctggata	gccaagcgat	1200
acagggcttg	gttcgtttct	ccggcgaagt	cgcctacacc	gtaccgcata	cgatagacag	1260
gctcacctcg	acacgggtga	ggatttcctt	acccaaagga	cggtcagctg	gcggtgcgac	1320
acctgccgca	agactcttgg	ctggactatc	gctctccgga	cggagcggat	gcgataccct	1380
gctgatctcg	ctgccggccg	agggaaaaga	agtcgtcacc	ctgccggacg	caactactat	1440
taccacgcta	agataaacgg	actcaagccc	cccgcaccta	tacctacagg	gtcaagacgg	1500
gagagcagac	atcgccctgt	accgattctc	cattcccgac	agttcggctg	ctaccgactt	1560
catctatacg	gggacgttca	ggatccgggc	aacggaggca	gtcaggctct	gctccaagac	1620
tgcgcaccct	gcatacccaac	cccgattttc	tggctttggg	tggcgacaga	tcgaaggccc	1680
cacggatttc	tattgggaag	tatggcatcg	tgtcaaggcg	actggacggc	atcgacaccc	1740
gtcatcgccg	ctaccggcaa	ccacagtata	tcaaaggact	gaaaagacag	ctcgatcccc	1800
gttgggtacc	tcatacaact	atccggccaa	tggctccaaa	ggcttcgagc	ggcgttcgta	1860
ctcatagact	tcccccatat	gcggctcctc	gtcatggaca	ccaacgacat	caatggccgg	1920
catccgtatt	caaccaccgc	acgtggttga	aaaacgcact	gaaaccaccg	tacagccgtg	1980
gaaggtggtc	atgttccacc	acggagtgtt	tccgtgcggc	agggacgcat	gaacccgatc	2040
atccgctacg	gcttccgccc	attctggagg	aaggcgggtg	cgacctcgtc	ctgcaaggac	2100
acgatcagcc	tactcccgtg	tcaccaccaa	gacggagtcc	ggcacgaaga	cgacaccgta	2160
tatatcatca	gcagcgcatc	gcccgaagcac	taccgcaacg	gattcccagc	cagcacgaca	2220
ggatcggtcc	cgccctctac	ctctatcaga	ccatcacgtc	acgcaggagg	agatccgcta	2280
ccgctccacc	accttcgaca	atccccgtac	gacgacctgc	acctgaagaa	gcaggggaggc	2340
cgaaccacag	tcaggacaat	gccgaggact	ggaaagagat	cttcgccttc	gacaactttg	2400
cgacagcaaa	aaaggccgta	aaaagcgtgc	cgactatcgg	caggcagccc	agaacgagca	2460
gccggacatc	ggtaagcggg	cgatcgggtg	cgcgtaaaaac	agatcgaaaa	cgaacgaaca	2520
gccacactgc	caacaacttt	tcactacctc	gttgccgtaa	cgacagaata	gaaacataga	2580
cgatcctcgg	tcgaaaagtcg	cgcggctcgtc	gattcttcga	ttactaaca	aacaatgaaa	2640
aaagaaacct	tatgcgtagt	ggcttttgcca	cactgtccat	ccatggaggc	gctatgagaa	2700
cgcttccggc	tgcttagcca	ctcccattta	ccaaacatcg	acttcgtttt	tgacactgcc	2760
gaacagggag	gccgcgcgtt	tgccggagag	gaaacggata	catctatacc	cgtctgggca	2820
accccaactg	cacccaagtg	gagagaaaact	ggccatgctc	gaaggcggag	aagccgcgcg	2880
atcggcctca	tcgggtatcg	agccatcagc	tctgccatct	gggtatgcgt	gaaggccggc	2940
accatatcgt	agccggcaag	acgctctacg	gtgcacactt	cgccttccta	cccacggact	3000
gagccgctac	gggtgtggaag	tcaccctcgt	ggataccccc	atccggaaga	ggtggaggcc	3060
gccattcgcc	cgaatacgaa	gctcgtcctc	tggagactcc	ggccaacccc	aatatgtacc	3120
tgaccgacat	caaggcgtct	gcgacatcgc	tcataagcac	gaaggcgta	gcgtcatggt	3180
ggacatacct	actgcacgcc	ctatatctgc	cgtccgctgg	agctgggtgc	cgactcgtgg	3240
tacacagcgc	gaccaagtac	ctgaacggac	atggcgacgt	catgccggat	tcgctcgtag	3300
taaagaggac	tacatcaagg	aggtgaagct	cgcggcgtca	aggacctcac	gggggccaat	3360
atgagtcctg	tcgatgctta	ttgatcagcc				3390

(2) INFORMATION FOR SEQ ID NO:932

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2199 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2199

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:932

```

gagaaaggcc tcgcgctttg atttcgatcc gtcgaacttt ctttaagtagt cgcttgtctg      60
cacttatctc tgattaaggg acttctactt tgttcaggtc tcattgacga cagcatccgg      120
agtcaaaacta ttagcctctg cctcatactg agtccgatac ggtgacgcat cacgtcatga      180
catacggcac gtacatctca ggaatcacat aacctctatg cttgatgaag gcgtatgcac      240
gtgcaccaat gctaaattga tagaagctcg gggcgaagct ccgaaactga tcattctttc      300
agagcattca agccgaattg ttccggatag cgcgtggcaa aaaaatatca actatatatt      360
gctcgatctt ctcatccaga tacacctgcc ttctacttgg cgcgcttcca gtatttcttc      420
cgtagtgatt atcggacgaa ttctgccgac cggccaccga tattctgacg aatgatctgc      480
atctcctcct cttttgggga tagtctatca gcaccttcac catgaatcgg tctacctgtc      540
ctctggcaac tgataagtac cctcttgcct gataggattc tgggtagcat tacgaggaaa      600
ggctcaggga gcttgaaagt cgtttcccca atggtaactg tctctcctgc atcgcttcga      660
gcagagcact ctgcactttg gcagacacg gttgatctca tcagccaaaa taaagtttgc      720
gaaaataggg ccttgtttcc ttgaaattcc tcccgtttct ggctgtacat catggtacct      780
accagtcagc tggcaagagg tccggtgtaa attgtatgcg gttgtacttg gcataatcag      840
tccggccaga gttttgatag ccaaagtctt ggctaattcc ggactccttc gagcaggata      900
tgtccatcgg ccaacagtcg gatcagaagc gctccaccaaa atggtttctgt ccgacgatat      960
tctgcgccat accgtgcgtg tgagattcac aaatgagctt ttctgctcaa taagctctgt      1020
gagagcctta tgtcaatggg ttctactcat ttttttctat atcttttctt gctaaatata      1080
atgaagatta tgcacaccat ctcatgttga gatagacata tagcatctgc agggtttaag      1140
cgcaagtttc agccaacggc cagcattcgc tcgatcagag caaagccttc tccctgattt      1200
cagcaggcac ctttacttca taacgttgtg ggcgagagct tccaagacct cccacaaacc      1260
tgtttgtttc atataaaaca gcggttgtcg ggttgaatgg caataaacgt tttacccgga      1320
tttctttccg caacacgtgt agcgtctccg gctctgtcgc aataacaaac attttttctg      1380
ggactcccga gcatgattaa gaataccggc cgtggaatac aaaagcagcg atcgctactc      1440
agcactcgtg gcgaatgaga gccctcgcct ccggatgaat gagaatatca gcatcgggat      1500
acagctccat agcctctaaa tggattcttc cgtaattcgc tcatgtacga aacacgaagc      1560
attccaaatt ccatctcccg tctgtctttt cgcgagatat aagctccaag gtttctaccg      1620
ggccaaagag aattttttctg tctcgaggca agctctccac taccttagtg cattgctgct      1680
tgtcaagcaa gtagtccgtc caagccttta cctcgcaggc cgtattgaca tagctaacga      1740
tgagtccatc ccgggttctg ctctccacc gacgcaagcc ttcagcagag gcaccttcgg      1800
ccaaagaaca accgcgtatt tctgtggagt gaggatagtc ttctgcggcg aaataatcga      1860
agcgtttcgg ccatgaagtg gactccgcaa aagagtatcg tatccgcctc ctatcggcag      1920
cctgacggga cagaccaaga gaatcgccga tataatcggc atgtcctgca cctcagggcg      1980
tgcatagtag tgcgccaaaa taatggcact cgttctttct tgagaagttc tatctcctta      2040
agaatatcct ttgtttgcta caaaaaccaa cttaaagctt aattgagtaa ggaggaaatt      2100
catgctgtgt ccatggccgt aacgctatga gtcaaaagcg ctagctgat gtaatcacac      2160
ccgtttctgc cacactttgc agccgttcga gtgtcatat      2199

```

(2) INFORMATION FOR SEQ ID NO:933

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 611 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...611

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:933

```

gccgacggcc ggaatgtact tgccgtact cgcttgcga taacgactcg ttggtgctac      60
gggtgatcaa cggctatgcg ccgcttctcg ctgattcgca ctgatcgacg aatcgatcac      120
ctacggttca tcgcaggaca gtgcttcggg aagaccgaag aggagaatag cgaatcggtg      180
tggtaatcgg gtatacttat ggaggaagaa cttcagtacc ggatgactcc cgagatggcg      240
gagctttcga cgaagacgat gcagaggaca tctcggacgg cggactcgac ccggggaaga      300
ggacagatac gaacatttcc gcactgtagc agatccggga cagcacttat tcgtatcgac      360
aaattccttg tcgacaggat gaacaacgcc accgcagccg tatccaacaa gcggtgaag      420
ccggtgccat attcgtcaat gccgaccggt aaagagcaac taccggatca aaccgggcga      480
tgtggtcacg tggaactnct ccggccacga cggaattgg agatcattcc cgaagatatc      540
cactcgatat agtgtatgaa gacgatgtac tgctcgtgat caataagctg ccggattagt      600
ggtacacccc g                                     611

```

(2) INFORMATION FOR SEQ ID NO:934

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 515 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...515

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:934

```

tctctccga ataaccctcc gtgtggcttt cgagcaatct gtcataggct cgttataagc      60
attctgcccg ttgtagaata cattatagcg cgtagtgaat tgtgatagaa tcgggatgcc      120
gccgtattct tcgatgtgga gcaggacgca taccgaatac gacagctacc gggatgagca      180
gatagaatac gaggagtata gaaatctatg gctacgcatg gacaaaggac ttaatcgttt      240
tggttaaagg aacaaggcca ccagcaccag aatgatgaag gctccggaag ggatcccaac      300
ctataactgc cccagagacc cgtgaaggct gccaaagccg ccagattaca gaaccgaaca      360
ggatcgaaga gaagtgcgaa gtgaaaagat tctgatgctc tgaggaaggg tcaggagcga      420
catcagtagc atgataccca caaacggata ctgagcacia taccacagc cacagccacg      480
gacattaagc tcttcacgag gtgaacccta attcc                                     515

```

(2) INFORMATION FOR SEQ ID NO:935

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 540 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:935

```

ggctgccttg tgcgcattca tatctcgggc aacaattacg atatctgctt tttcggtttg      60
gctttcccg tcttccttgc tgctcaggtc gggatgggat atattgggta ctgcgaggca      120
agattgtttg gtttatagga aatgcccttt gttgcttttc acatggggca ccatcgacac      180
ttatataccg ctgcatgaaa gataaaagag tctctgattc cgcagtcgcg tatcaagggtg      240
atgactataa cgtcaaggga ttcgattttc gtgctcacia ttcagagaat cccatcctat      300
tctcaaatat atcaaaggaa gtggagccga tatcgtatgc ttgaagaggc agtactgagt      360
cggaaaagca actctcggtt tgtggggcta cgactttcaa gaaatatctt cccgaatatc      420
gctacatgga actggtcgca tctcgagaag atagaaaagg cagcggcctt atgctcctgt      480
ccaaatatnc atctcggatg tgcaccgcat tccataccga gtccgcattc atggcttcaa
540

```

(2) INFORMATION FOR SEQ ID NO:936

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1106 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1106

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:936

```

attttggggc tgaacgacat gtcgctttca ctcactttta tagggcctgc cactgaaatt      60
cgggatcatt gtcgacaaaag ttcgacaaga aacggatacg ctttttcccc cttgtttatt      120
catttcgaat accacaccca ttagcggcag gcattgtgac ccatggattc agagggtgta      180
cccaatgaga gateccactt tcaattttct tctctccatc ttgactgaag agtaagtttt      240
tattgaattt tgccctccat tcagagagaa cacatagtcc acaaaaactta tttttgcgta      300
ttgttgaagc cgggtgtaagc gaaagccaaa gcaaaagggt tgcaccattg ttaagagaag      360
aaggcgaacg atagttggag gctatatcca cacgtacaac tgcacattgg agaagtcttc      420
cttatacacg agtttcgcat ttgcgcgttg gcacgcgac tgaagaccgc aactctactc      480
ttatatcctc gggettattc atgagctcta ccgaccaa atcttgatgtcg gattcattct      540
accggttacc acgatatcga agtcttgaaa ctgataatca tccgatggtc ccaatccctc      600
aacttttggg atgtggcacc ttggtctttg gagcggagat cttcacattg ctattgccgg      660
tgctgtatcc actgtgggtc attacaagat ccacccgttg tccgccacac tcactctcgt      720
ttgtaccagt ttttctgatt gtactggacc accttgacat catctcctcc catcgtctgc      780
gcttggcgag aggacagagg gttgcgacgg cgaaagccgc caccacgaat ttggtaaaac      840
ttttgtcttc atagtttttg tctttttttt gagactcaat tgacaggagc cctccagtct      900
cttgaattgt tgattagcga ttagtttgtt acttgatttt cagcagagca cgatggctca      960
tgattctctc ttaccggttt cgttccttgt ttttactttt tactgattgt attatcgttc      1020
acccatggca agagtgtcca aaatcgaaat cggcaattcg cacaacgcgg aatgcatgtc      1080
ggccttctca tgccacaaaag gaacgg
1106

```

(2) INFORMATION FOR SEQ ID NO:937

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 989 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...989

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:937

cgtcgcgctc	atgctttgat	gggagagcgt	atcgggtatgg	atgtactcat	accatatacg	60
acgtatgtaa	ggctctgatt	gacaattatg	cagaagccat	gatttcgaag	gcttcaagga	120
agatctgatg	cgtgcactcg	cgatagatct	cctatcacgc	aagaaatatt	cagaggtaag	180
aaagcagaag	agctgacgat	atgcttttcg	atgaagctta	caagtctttc	caacgtaaga	240
tggattgatc	gcagaagtgg	cccacctgt	ggttcatcag	gtattcgaga	cccagccgcc	300
gtgtacgagc	gcattctaata	ccccattacg	gatggtaaac	gtgctataac	ataggatgca	360
atttgcgtag	agcggatgaa	actcaaggga	aagcatcatc	aaagaatttg	agaaagctat	420
cgtactgcat	actatcgatg	atcttggaag	gaacatctgc	gtgagatgga	cgagcttcgt	480
aattccgttc	gaatgccagc	tacgaaaaca	aagatccact	acttatctat	aaactcgaac	540
ttacgaactg	ttccgcaaga	tggtagaagc	catgaaccgt	aagaccgtgc	gatcctaattg	600
cgtgctcgga	taccgggtacc	ggaggctcct	tcccaagaga	gctggaacac	aggcggcaaa	660
tagaaatccg	acatgcagcc	gaacaagtac	ggacatgagt	aagtatcgga	cacaaaaaga	720
cgatatagaa	gcccacagaa	agcacaaagg	gatgcggcaa	gcagacctca	gggtgcagct	780
gctcccagac	accgataaga	aacgagaata	agatcgggcg	aaacgatcct	tgtcttgccg	840
tagtggaaca	aagttcaaac	agtgccacgg	gcgtaacctg	taaaagattt	atgagagaat	900
caccgactat	ggtatagaat	agtctgngat	ttctttttat	tttttctctc	taccgcata	960
taaaaaagac	tatgatccta	ctatgaccg				989

(2) INFORMATION FOR SEQ ID NO:938

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 837 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...837

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:938

gcgatttatt	ttgtgggggtg	caattcatgg	agtggcactg	gccgtacaca	actctgggtgc	60
gagatctttc	cgctgaatcg	ggctatgtcc	acggatatcc	tttttggcgc	agatggctcg	120
gacggatcat	tactttccat	ctcgtctttt	gggttgatc	ttcttccgat	ccgattcgat	180
ggcggtgggc	ggacagttct	tggacaaata	ttcaacgact	tccatcccga	agttttcttc	240
caattattgc	cggctacaag	ggcgttgtcg	tactgatggg	cataggttac	ctgtgcattt	300
tgctcgtaag	ggtaagcgaa	acagggcgca	atccatgctt	gaggtgctcc	gttcgtcttg	360
caaactctga	tgctcgttct	cctgatcttc	atatcattca	ggtacgcagc	tcggaaatac	420
agcccttcat	atatttccag	tctaaatatt	cttactgcgg	tctcctttca	tctaagtgaa	480
cgataaggat	tgcctgttag	gactctataa	gttcggcaat	cttccaaaat	gagactgttc	540

atgggagttt	gattgagctc	ttttgctgca	gagctgattc	ttagtgcttc	gggaaaggtc	600
aaacctccgg	tatatgggca	ccgagcaaat	agaaattccc	caggtttcca	ttagagaagt	660
actcctttcc	tcgtcaaata	ggcgagaata	agaaacgatt	gtcagccgtt	tcttgctccc	720
tgcatgatgc	aggaccgatt	gtcggctggt	tcttgctccc	tgcatgatgc	aggacgcgat	780
tgctcgctgt	tcttgctccc	tgcatgatgc	aggacgcgat	tgctcgctgt	ttctgct	837

(2) INFORMATION FOR SEQ ID NO:939

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 903 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...903

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:939

cttcgatgat	gcttggagtc	ctctcagatc	actgcgtaga	tggtagcgtc	tctttgcate	60
cctgctgcgg	gctatcaata	tcgaacctat	cctcggttcca	tgcccggcca	tatggttcgtc	120
ggttattaca	cggatatatc	caaaaaaaaa	aaacattcct	ggagacaacg	atgatcgggtg	180
atgtcgattt	ggacgatttt	tccctgatga	gcagttggat	tcgacgatga	taggcaaatac	240
ccaaatcaga	tgtccaagct	gactttcgag	aagtcgaaaag	aatatgccaa	caagaataac	300
aggaaaacga	agctgacatt	cactccggca	agtcgggcta	tatttcttgg	aaatatccaa	360
agacgtgcga	aggcgaatcc	aatccatcgg	cagtagcatc	gcttttgccg	catcgctcctt	420
ttgaaataag	aatacgcggg	atgctatgtg	gcttacggct	atgcaggctc	tcagtacacc	480
tttctgacat	aaaaagtgtg	ccgaaaacgc	tgctgaagcg	attttcgaca	caccctcatc	540
cttatgctta	tatgaaaagc	cgcactggcg	atagcgtaaa	ctccgaaaac	aagatttgag	600
gattccacca	cctttgtaat	ccgctgtgca	aagcaaccga	aaggtgcggc	cgcgccatcag	660
cgatgaaatt	gtcctcggaa	tagttgtatg	atgagtttcc	ccgatctaac	agtgcggctt	720
attcctcgtc	ttctcgattt	gcaaagttag	caacattggt	tagatttgca	attcctttggt	780
tcattgattt	gggtatgggt	acactttcgg	atcctaatac	gcgttctcga	cgttcaaacg	840
tattacgata	gttcggttgc	ttaggtaatc	tgctttgacg	atggggaagt	tttctccggt	900
ttg						903

(2) INFORMATION FOR SEQ ID NO:940

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1107 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1107

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:940

atgctatcat	gaaagcattg	tcgatacgca	atttccaagt	gcgcgactaa	tgacagggct	60
gaagatgtat	tcgacgagga	agggtttnga	cattataccg	agatccggat	gacggatgcc	120
cgcagtaagg	gggtggatac	gaccggccat	ttgcggcgag	tggggatttg	cttcggggagc	180
tactccattt	tatattcatt	gatccgtttc	tcccgtagta	atccaataac	atcaacccaa	240
taaaaaggat	agttttttctc	gaactaaaaag	tcgcaaaaac	aacgaatagc	aattgctgta	300
cgaatgtaaa	ctttgactaa	ctttgcaaaa	gcattttttc	aaacataatc	aacaagaaaa	360
ttagaaatga	aaactcctgc	agaactgaag	tatctaagga	tcatgagtgg	gctcgccaag	420
aaggcgacgt	tgtcttcac	gtatcacgga	ctatgctcaa	ggcgaattgg	gcgaaattgt	480
ctatgtggac	ttactaccga	aggcgaaacg	ctcgaggctg	atgaggtttt	cggatcgatg	540
aagctgtgaa	gactgtttcc	gacctgatga	tgccatcgc	cggcgaggat	tggaagtga	600
ccctgatctg	gaagagcaac	ccgaactcgt	aaacagcatc	cctacgggtg	cgggttgatt	660
atcaaggtta	aggctgcaaa	tgctgcgact	tcgacaacct	cctgagtgtc	gccgaatacg	720
aaaaactgat	agctcataaa	tgacgccttt	ggtaagcatc	atcatgggta	gtacttccga	780
tctgccatta	tgagaaaagc	cgccaaaatg	ctcgatgaaa	tgagattcc	attgagatgt	840
tggcgctttc	ggctcaatcg	actccggctg	aagtagagac	tttgacacag	aggccagagc	900
tcgcggtatc	aaggttaatta	tcgctgctgc	cgtatggcag	cttcatttgt	gtggcgtaat	960
tgttccatg	acgtctatcc	ggtaataggt	gtacccatca	atgccactct	tgacggaatg	1020
gatgctctgt	agccatcgtt	caaatgcctt	ccgggatccc	cgttgctact	gtggggataa	1080
tgctgccaga	atgcagcact	tttgccc				1107

(2) INFORMATION FOR SEQ ID NO:941

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2740 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2740

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:941

cgaaaaggta	gagataaaga	ggccgtgagc	ttccttgggg	aagacttatt	ttcagcacac	60
ccaaagcggg	agttttctgag	aaaagtaccg	gagtatctaa	gagggttttt	tgctgattgg	120
ggggaggaga	tgtttgccctg	tttggcatct	cttccccttc	tccacaatgc	acttatgcgc	180
gacagatact	tcggttattc	aatttaggca	tttcaactacg	accatccctt	aggaatgggc	240
gagcgctgaa	gggtaagaaa	tggtatgaga	gatgctgcct	actcgaagcg	gcgcctatat	300
ctgcctcttc	gatgatactg	acgatgagct	tgccgtccgg	cgtaggtgg	agtcgttcga	360
agcaaaagct	cggccaagag	atcgtggcc	tctctgctgt	cgggtgtctg	ccacaaggga	420
tggcttgata	ctcggctatt	tggtggcaat	cagttcgagc	atttgttcat	gcgatgatct	480
gccatcttcg	gtgtagtagt	gatgacatcc	cgcacgacat	ctgccgcaca	gtctatgatt	540
gtacaggtgc	tgccagcagc	gaataggaag	agacaccgag	gggcgacaat	cgaacccgac	600
agattggagt	tcgtccacag	ctgccttcac	ggcagaacat	ccgacggatt	gaattcgagg	660
agttcgggga	agagaagttg	ttgctgtcga	tatgacgtct	tgattcgtcg	gccatgaaac	720
gatcgtaaa	aataccttgt	gtgcgcgggt	gaaatcgacc	aaagccaaac	ccctactcag	780
agtatcacca	gataacggcc	gcgatggaca	tagcagagca	tatcgggtgga	ggggctcgag	840
atacggcaga	gggagtaaaa	tcggctcgagg	cgaacagctc	ttcgagcgga	tcgggtggtc	900
tgccatcttc	tcggcatctc	gcttggtctc	gactgcttga	agagttcgtt	ccagcccata	960
tccggcgatt	gacgcccgga	ctgcggatag	gctccgtcag	tccggtttct	ttgaagggat	1020
tatacgatga	tccagatcta	cgggcggagc	aactacgttt	ttcccggggc	cttgatagca	1080
gggatgtcga	tcagttcttt	gcggtcgaag	tcaatggccg	gactgcttg	ctggagctga	1140
gtgcttcacg	aatgaccaca	ccgatgagtt	tgaaaaagcc	tggtcgtcgg	agaacttgat	1200
ttcagttttg	gtcgggtgga	tattgcatcg	atctgggagg	gttcaagatc	gaaatacagg	1260

aagtaattgg	gcatgttccc	tgaggaatga	tgcctccta	ggcagccatc	acggctttgt	1320
ggagtaagga	tgacgcatga	agcgctcgtt	cacgaagaag	tattgcaggg	cactcgtttg	1380
cgagcaccat	cggggcgccc	tacgaagccg	gatataattg	tatggggctt	tccatcccga	1440
tgggtatcag	attctttctc	attctttctc	gaatacatcg	aggattcttt	tcttcagagg	1500
agaaggaggc	agatcctgcc	cagctcacc	gaatggtaga	tagaaaaagc	gacttgcgga	1560
ttgaccaagc	cacccgttcg	tattcggtca	ggatgtgccc	aaattccgtt	tcattcgttt	1620
gaggaatttt	cgacgtgccc	gtacattgta	gaagagggtt	ttcacaaaag	aatacagccc	1680
agtggagagg	tgacagtagc	cacttcgcct	acttcgagcc	attgatggta	aggcgcgtac	1740
ccaattcatc	ttcagccctt	cgggtaggag	ttccacttgt	gcaacggctg	caatcgaagc	1800
cagggcttca	cctgaaaacc	catcgtcga	aggctgaaca	gacctgaaa	agaagctatc	1860
ttgaagtggc	atgtcgctcg	aaagccatc	gggcacgct	ttggctcatg	ccttgccggt	1920
gtctgtgacg	cgtatcaatt	cgcgacgggc	ctccctgaca	ccagcctgat	aatggaagcg	1980
ccggcatcca	atgcgttttc	caatagctct	tgacgaccca	ggcgggacgt	tggattactt	2040
caccggcagc	aatttgatgg	cgatactgtc	cggcaggagg	cgtatgacgt	cgctcataag	2100
atgacctaaa	aaccaaccac	gatagcaaac	aaacggctat	gagcaaaagc	aacgtaggag	2160
tgttcgtccc	gagcgagtgg	attgtgtctc	gccttgccgc	tgtcgtcctt	cagatgctgg	2220
gtaccttcca	caaatgttcc	gcgtatacga	ggcctagacc	ggagtagtcg	tgtgatgaag	2280
actgtccgtc	cagctctgct	tgcctctctg	ttctacttcg	cgtctaatac	gttcgatacg	2340
tttctccaac	tctcgcgtcg	ctgatcgtaa	tagataggtt	tgtggtcaaa	agaccggggc	2400
tacgctgttt	atagaatgat	cctaataccc	tagtttttct	ctattaaaga	gaatggagtg	2460
aagaaaagat	cgaagaagcc	ttctctcttg	gtgtccgtat	aggctcgggc	atataaggag	2520
agagccggtc	tgtaggatcg	gtagcctctt	gccggctgca	ggtgtcggag	gaatggagtc	2580
ggtctgtagg	gcagcgatgt	caatgagtct	tttctctcct	cttcggccag	agcccgtgta	2640
tgcacgaggg	ctgccaaagc	accgctnaag	cgtcgcaaat	cggacagcga	tccgagcacc	2700
tgcaaagacg	gaatcccggc	tggcctgcgg	aaaagatcct			2740

(2) INFORMATION FOR SEQ ID NO:942

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 881 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...881

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:942

tccaggacgg	atagcccgca	tagctcccaa	ccatgcctct	gtgctgatcc	ggccgaagag	60
cggtacgggc	aaagagttga	tagccgaagc	tctgcacctg	ggagcaaacg	agcctcagcc	120
ccattcgta	aggtaatttt	gggtgggttc	ccgaaagtbt	gttcgaaaagt	gagctgttcg	180
gacataagaa	aggagcttta	ccaatgcttt	ttccgacagg	aaaggacggg	tcgagctggc	240
tgatgcggca	cgatctttct	ggacgaaata	ggcgaactac	cggtcggcaa	ccaataaaac	300
tgctgcgagt	gctacaggaa	cagacattcg	agccgttggg	tgaagcgtct	cccaccgagt	360
ggacatccgt	gtggtatcgg	ctacgaatgc	ttcttgaggc	gaatggtagc	cgaaggacgt	420
ttcagagagg	acctctacta	tgaatcaacc	tgatacatct	gcactctgct	ccgctgcgtg	480
agcgtcagga	gatatacagc	tgctggtgga	agccttcagt	gaagcctttg	cccaatcgac	540
ggattgcccc	atgccgtttg	gagtgcggaa	gctatgcgac	gtatctgtcc	atgcccttac	600
cgggcaatgt	acgcgaactg	aaaaacgtag	tggagcgacg	ctattgctct	cgggatcgag	660
agaaatcagt	gcccgggatg	tggctgcttc	ggttcgcagg	tgacggcagc	agaccactcc	720
gacgaacggg	ctttgccgac	atggaggaag	ctgctatccg	agagacgctg	actaaataca	780
acggaacggt	agtcgtgctg	cacgagcctt	gggattgagc	cggcaagctc	tttccggcga	840
atggagaaat	acggactgtg	atagtgtgta	aaacagaatc	g		881

(2) INFORMATION FOR SEQ ID NO:943

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 447 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...447

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:943

agcagcatca	cctgctgtcc	gtgctcggta	atgtctgtga	taaactcacc	gtatcggcat	60
cgtaaacagc	cgtcccgag	gggacttcta	tgatacgacc	tctccgttcg	ctccgggtact	120
tcgcttggtc	ccgccgctct	gtccgttgta	gccatgatat	gacggtcata	gcgcagatgc	180
agcagtgtcc	aataatccga	ttgccacgga	gaaagacatg	tccgccacgg	cctccgtcgc	240
ctccgccggg	ccacctttgg	ggatatactt	ctccctgcgg	aagtgcgtag	agccctccct	300
cccttgcccg	aacggcagta	tatcttgacg	taatcgacga	aatggactct	gctgccatac	360
gatggattta	gttagagact	ttgcggaact	tgccacaatg	ggagcgatac	gcaaagcgat	420
ctcttctatc	gtccccgtac	caccacg				447

(2) INFORMATION FOR SEQ ID NO:944

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 596 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...596

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:944

aggatcccca	gcctcaagcc	caagaaagga	cgcttctctga	gcacaaagaaag	cgagccgaag	60
agtgaggagag	cggtaaggag	cggttccgag	accttgagct	tggtcgcaca	gtgctgctcg	120
tcggatagag	gatgcttttg	tcggaatgag	tatgcaagtt	gggaaaataa	gaagaaaatc	180
gagcagctgt	tgcaggtctc	tccctttggg	aaacctttga	gagcaagctg	aaagtcaagg	240
cagacagata	aatattgcca	aactgaaaaa	ggaaatnctc	gaagccaaag	aacaccctat	300
cacgacttca	agtcgtggca	gaagtccgag	cgcgaaactgc	gcctgtcaag	aatcaggata	360
ttatcaacttg	gatgatgtgc	agggatctca	tgaagagaac	aaggtggagg	gattggatac	420
cggtactctc	tacctgaaag	aattcggacc	gacgtccaag	agcaggggag	cctcaatgtg	480
ctgaaccacg	gaaagccgat	gcgctttgcc	cgtggctcgtg	tacagaagcc	gacaggccga	540
ggccatgtac	acaaggagga	ggcttctctc	ggcgacggtc	tatatcgaga	aaggga	596

(2) INFORMATION FOR SEQ ID NO:945

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 712 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...712

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:945

```

gccgttctac ggcaaggaag cgtaagtatg tcaccagccg gcatattcag accgtctgat      60
gcgagaactg gacaagaatc tggctctttc gtgtggagcc accgataacg ccgacagctg      120
gctcgatattc gggcggtggcg tactgcactt tccgttctta tcgagaccat gcgccgcgag      180
gggtacgaac ttcaaggggg cagccccaag tgatcatcaa agagatagac ggcgagcggt      240
gcgaacgata gagcttcttt cgatcaatct gccggaagag tcctccagtc gtatatagac      300
atagtgaacc gtcgcaaggg agagatgggt atgatggaaa acagaacgac cgggtgttta      360
tggagttcca tatcccttca cgagggatca tcgactcaac aatgccgtac tgacagcatc      420
ggcaggagag gccgtaatcg ccaccgcttc ttggaattcc aaccgtggaa aggggagata      480
gagcggcgca caacgggtcg atcattgcgc tcgaaagcgg aacggcctat gcctatgcct      540
gaataatctc caaaagccgt ggacgcttct tcatctctta cgcaggagag gtctatgccg      600
gtcaggtcgt aaggcgagca cacgaaagga agggcgactt ctgcgttcaa cgtctgcaag      660
agcaaaaagc ttaccaatat gcgtgcttcg gtagccgatg ataagtgtca ct              712

```

(2) INFORMATION FOR SEQ ID NO:946

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 622 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...622

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:946

```

cggagcatcg tggtagtcg tgttggtggc gtaggccagg gcagggtgggc tgtagtactt      60
ccggccaaca ttcccatcag cgtaagataa ttgatcttta tcctttgcaa gcgataaatc      120
cgatgataag gagaggcagg aggggtgatat aaaaccgtat ccgatccatg taaaaccacc      180
tttgtttact atcgtacgac gaacccctct ccgycccccca atcctacgca agccaagaat      240
atggtatgcc gatttctctc aacatcaaat tggcactggg agtcgtataa gtcacagctt      300
ataccgataa ccgaaccgac tcaatagaat agccaccacc aatggccacc agcaagtccc      360
agcttgacgg gctgaggaat accgggcaaa acatcggaag cgaacccaaa aggataaccga      420
gaccgatgcc gatgaatatg gcattaggtt cggttcgttc agtcgtttga caagaattac      480
cgatcagttc tccactttgg gcattactaa ctactgccc actacagtca gacgatcgcc      540

```


acctgtagcg gaaggaagcc aatgctacca tctcaacttc ggcacggtea cacgtgtcac
attcatgccca tgcattttgc gt

600

622

(2) INFORMATION FOR SEQ ID NO:947

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 542 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...542

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:947

ggaaaattct	tccgattctc	gaccctgaaa	atagattttt	tggaaagctt	tgaataatat	60
gtctcaacct	atcaatgact	tataaagggt	cggttgggat	acccttagtt	agaagggtgg	120
agacaactcc	cattttttgag	ccaaatcgat	acaaatgttg	ggaataccct	tagttagaag	180
ggtggagaca	actacacatc	tttagtaatt	tcttttagtaa	tgttgggaat	acccttagtt	240
agaagggtgga	gacaacgttg	tcccaagcct	gaaaggtagc	gttgctcgtt	ggaaaccctt	300
agttagaagg	gtggagacaa	caaacgcac	gttataagtt	ttttgattgc	gttggaata	360
cccttagtta	gaagggtgga	gacaacgttg	tccaagcctg	aacggtagcg	ttgtcgttgg	420
gaataaccctt	agttagaagg	gggagacaac	aaacgcacg	ttataagttg	ctgtgattgc	480
gttggaata	ccttagttag	aagggtggag	acaacacctt	tgcttcgaca	tcctcaggac	540
ag						542

(2) INFORMATION FOR SEQ ID NO:948

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 565 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...565

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:948

cgctcttcta	taaaatgcgt	gatgtccatt	ccttttcagat	tctgttcttc	ccgatacggg	60
acaaacgctc	cacctcgca	tccagacgat	gaccgatcgc	tccagcagga	tatgcgtatc	120
ggacatattg	cgcgatgct	gtccgacgag	gtaatttcgt	cgaagatgcc	atccacattg	180
gtcagattga	aattgcgcaa	atggacaagc	acttggcacg	cgagttgctg	cggcgtatca	240
tcggaggacg	aaagtcagac	cgctcttttc	ggtagtgctg	tagcgcaagt	gtccatgtag	300
cactctccgg	catacggtat	ctgagaggca	gcaaattcgg	catgccccagc	tcttctcgag	360

aataagcctg	aaaatccttg	tgtaccgagt	cgatatctcc	gagatggcat	ttgccccaaag	420
tgctctttct	ctgaagaggt	atcttctccg	ggacggctgt	tgagcttcac	cacagcgagc	480
ccggcacctt	ctgacctcga	ttgtgctgct	tctccatcag	gaggtatagc	ttgntcangc	540
atacatccat	gtgccatact	tatcg				565

(2) INFORMATION FOR SEQ ID NO:949

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 872 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...872

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:949

ggatctttca	accccatctg	tatagtcgta	cggcagactt	ttatcaggat	ttgccagaag	60
cctttccatg	ttggatgagg	tggttttatt	ggacattttc	cggcacgaga	actccctttg	120
ccaggtgtga	ccagtcgtct	gatattgatt	tgatcgagaa	tcccaataaa	acgctgggtga	180
gcaaaaacga	tctgctgatt	atttacacgg	caacgagata	cccgatgtcg	tattgatact	240
cggagcggcg	atatcgatcg	gttagtgatt	cctgncaaac	aatatctcca	aacttatgct	300
aaagaaggtt	ctttatatac	tggggttctt	tcttgtactg	gccatcttgt	tgcagccata	360
gttttctttt	cggactattc	cgatagcact	cgtgctcagg	tttggaagtt	cgagtcgagg	420
gtaagacgaa	acatgcattc	agcaaaagac	cgatgtggag	cgagacttga	agcgtctggg	480
tttcaccccc	atggcaagct	gctcgactct	atcgatcttc	acagaatgga	aagaaacctc	540
gtgctaattc	ccttttccgc	ggagcggaat	tgtatgcctc	tccatccgcc	aactgtatct	600
gacagtggaa	caaaaagatc	cgctctttat	ggtagtagat	ccgataacct	tttctatggt	660
tctaccgaca	ggagcgtgat	cgttccaact	tgcagtatgc	tgcccccgta	ctgatggcct	720
caggggatat	atctcgtcct	tagctaccgg	ccctctcttc	gacctcattg	catttatcaa	780
gcgagatcca	ttctggncaa	actttttcgc	tcaaggttat	gtgcccggat	aatgncagaa	840
catattaagt	tccccgtctg	ggcnaaactg	ga			872

(2) INFORMATION FOR SEQ ID NO:950

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 544 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:950

agatcatacc	ggatataaat	gccggttgat	gtggcctaaa	gttcgctatg	cttcgggttta	60
catggtgaaa	attccttacct	gaaagtgccg	actaaagggg	tgtatatcaa	ggataccata	120
tcgtaggtgc	tgtattcggg	ataggaaccc	gctcaatgac	agacgttcgt	tcgtaaatgt	180
ctctcttgaa	tatgacgatt	gatcccgaa	gaggggtatga	tcaaagaaaa	tgctctgaaa	240
ttgacttcgg	cctcacgttc	aacgagtcac	ggtttaaaaa	gctgaaactg	aactacagaa	300
ggaaaaatgt	tgaacattaa	aagaataaag	aagaaaaatga	atgaagaaat	ttgtttgcaa	360
cggcagcact	gctttttacc	gcaagcacag	ccttgctcag	accggagtcc	aaacaaatac	420
cccattcggg	agtggagaag	aagcatccgt	tgccgtcaaa	acataagtct	ctttacctct	480
tatgcgaaaa	gggtaattac	aaggatgcct	atgatttttg	ggagaaagcc	tatgaggagg	540
cccc						544

(2) INFORMATION FOR SEQ ID NO:951

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1618 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature:
- (B) LOCATION 1...1618

(xi) SEQUENCE DESCRIPTION:.. SEQ ID NO:951

gccgtcagtg	atattgattt	ttccatccct	tcagggcaaa	cctatgcgcg	gtcggaaactt	60
ccggaggggg	taagaccact	atagcccgac	tcatacctgc	ttttgggacg	ctaccaagg	120
ccatatacgt	atcggtggag	tggatgtagg	gatatggcaa	aagaagagct	gatggacagg	180
atctctttcg	tctttcgaat	accaaacttt	tcagaaccac	cattcgtgag	aatattacct	240
atggcgctccg	gatgcacccg	aggatgcttt	ggctcgtgcc	atcgaccttt	ctcaagccgt	300
gaaattatag	agcgtttgcc	cgatggactg	caaacgaaga	tagagccgat	ggcacgtatc	360
tctccggagag	ggagcagcag	cgcatagctt	tgctcgtgcc	atactcaagg	atgctcctat	420
tgtggtgctc	gatgaagcca	cgcttttgct	gatcccgaaa	acgagaaatt	gatacagcag	480
gctttgcacg	actgacgaaa	ggaaagacgg	tgctgatgat	tgctcatcga	ctgacgagct	540
acagcatgtg	gatcgtatcc	ttgtgataga	gaagggacga	atcgacagaca	gggtaccac	600
gaagaactcc	tgacacaagg	tggtctttac	aaatccagtg	ggaggaatac	cagcgatccg	660
tttcttggag	attatgaaag	aagaaaacac	acaattacct	ctaaticgaaa	cgaacaaac	720
ctatgatacg	atattccaac	accgattcgc	tctctctcgt	aagggtgcgc	aggatcctgc	780
caaagcattg	catggactac	ggttttgaat	gtcggattta	tggtgcctgc	catttcactt	840
ttcttttcc	cgaagactat	ctgcaaggat	ccgccacaca	tgtatttggt	attatatagc	900
catgggagcg	gcttttatgg	cggtgctctt	cttatagctc	tcttccaata	cacaagcctg	960
tacaccaaga	tatatacaga	agtgccaaac	gnccgatcgc	cttggttgaa	aaactacgca	1020
aactcccatg	gctttcttcg	gagagaagaa	tctgtccgat	ctgacttcca	cgatgatgag	1080
gatagtacgg	tgatggagac	tgtcttctct	cacagtatac	cccagctttt	gcacggttgg	1140
tcagtctctt	tttgatcggt	atagggctct	tctgcttaat	tggcagcttt	cgttggcact	1200
cttttggggt	gtgcctgtag	cagcctagca	attgtctttt	ccaaaaagat	gttgaacaaa	1260
tcattccact	cgaataccat	gtcaaacgag	aggtcaccga	gcataatacag	gaaggaatcg	1320
aaggatacag	gagataaaat	catataatgg	cgaagaagaa	tttgccgagc	gctcgatgcc	1380
aaactccatg	cctatgagaa	gagccttatt	cgatgtgaac	tggtgtcggt	gccgtcctta	1440
atgcttcaca	tataatcctc	aaactgggac	tgcctctgta	atcataatgg	gagcttatct	1500
cttgtcagaa	ggaacaatta	tctattcact	tatttagtct	ttctgcttat	tcggatcgac	1560
atatataacc	catagtgaag	tattcagcaa	ttgctactct	gcagtacctc	gatgtacg	1618

(2) INFORMATION FOR SEQ ID NO:952

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 512 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...512

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:952

atctcatcaa	tcaaaacata	gtatttccctg	cccatatcctt	ttgtttgctc	atgatatagt	60
cgtataggag	attgggatta	cgatacttga	tatccgattt	ctatcaagag	ctacctccac	120
gaaatcttct	ttttgagctc	cttccctcctc	aatcgattct	taaagagagt	gaagagtagg	180
aatgactttc	ctgaactctt	aatcccgtaa	caatcttcac	cttaccattc	catcgctttg	240
cgaatactgt	gcaatgtatt	catttctgtc	tattatcata	aataaggtct	cttgtgattt	300
ctctgaaatt	ttagtcgtgt	attacaactg	ttttgtcagt	gcaagatatt	tttttgcttc	360
gaactaacia	aaaaaataga	ggaacaaatc	tatacgatgc	ttttgatgta	gccgaggatt	420
ttgcgaatac	atttcaaaac	actttgaggt	ggggaagaaa	cggaaaatta	ccgtctttca	480
aaatcgggaa	cggcgttatt	ttccggtaga	ag			512

(2) INFORMATION FOR SEQ ID NO:953

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 585 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...585

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:953

ctgaagaatt	gtaccatgtc	tgccaanttt	ccgttggatg	ttcgctcgga	acaaaagcca	60
gattcacttt	cttcttcggc	ccgctcaaat	acaatatgta	tcgcgttacg	acaaagggat	120
gaaagccgag	gacaacctcg	atctcgacac	ttggtctact	tgggtgccag	tatcttcgga	180
tgatcaatc	gttatagatc	attccggcct	ccacattcct	gcagcagtat	tttagcaact	240
gggggtgata	attcttttgc	tcacgctggg	gatcaaaactc	ctcatctctc	ctctgcttac	300
aaggggtatc	tctcctctgc	caaaatgcga	ttgctacggc	cgcggtacaa	gagatcaatg	360
ccaagtaccc	gggcanggat	caggaatcca	tgtgaagcgg	cagtctgcta	ccatgaatct	420
ctatcgtgcg	gccggtgcag	gccgatgagt	gggtgcttgc	ctatgctctt	ngcagttccc	480
tttccctcata	ccatgtacat	gtatttccct	acgactatcg	acattcgtag	cagagtttct	540
ctgggcggaa	gacctctcct	ctatgatgct	ggtttcagct	ggacg		585

(2) INFORMATION FOR SEQ ID NO:954

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1050 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1050
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:954

cctatataga	gatagagacc	ttctcttttt	tcaaaggtct	ccttaaagtt	aatgatccgc	60
cgagcaattg	cacttggAAC	cggaatgtgc	aagtatcttc	attcatttgt	attgcggtac	120
gaatacatta	cctttgcgcg	caaaaaataaa	cccccatcaa	ccagaaggat	gaaaaactta	180
gtcatcgtag	agtctcggca	aaagccaaaa	cgataggacg	tttcctcggg	tcggattata	240
cagtatctcg	agttacggac	acatccgcga	cctcaagccc	aataaattca	gtgtgatata	300
caaaacaact	acgagccgga	atacgagatc	cctgccgata	aactccggta	gtcaaggaac	360
tgaaatccca	agccgaccga	tcggatttca	tcggctggct	tcgatgagg	atcgcgaagg	420
agaggccatc	gcattggcatt	ttacgaagca	ttagggtga	aaaacaaaca	gaccaagcga	480
attgtatttc	cgaaatcacc	gagacagcca	tcagagctgc	tatcgaaaat	ccacgagatt	540
agacatcaat	ctggctcgatg	cccaacaggc	gaggcgcgtc	ctcgaccgat	cgtcggcttc	600
gaactttctc	ccgtttttatg	gagacgtatt	cgtcttttct	ttcggcaggg	cgtgtacagt	660
ccgttgcaact	gcgtcttattc	gttgaggaga	gcgtgagata	aatgctttcg	tgccggaagc	720
atccttccgc	tgtacataga	gttcgtcctt	cccgaaggta	gaatgctgac	ggcggaattg	780
cagaacgatt	caagacgaag	gaggaagccc	gatatttctt	ggagcaatgt	atgatgccca	840
ctttcatata	acagacgtta	cgaagcgtcc	gggcaaacgt	ttccggccac	tccttttact	900
acctcgacgc	tccagcagga	agcagcccga	aactcggcta	cgggtgtggca	cagaccatgc	960
gtatcgctca	gaagttgtac	aagaaggctt	atcacctatt	gcgtacagac	tctgtgaatc	1020
tgtcggatag	gcnctcgtgc	actcaaaaga				1050

(2) INFORMATION FOR SEQ ID NO:955

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1167 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1167
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:955

ctccacgccg	ttgtacatga	tcgggtcgat	gcgcgtcata	ccgatattcg	catcacgcga	60
agatgagtca	gatattcctg	tcggaacgtc	atccaaaacg	agcgcgcttg	atcgtcggga	120
aattcttcac	gagtgattcc	agttcctatg	atagaggaga	taggactcgc	gctcacccgat	180
actcggatag	gtcagctctt	gtgtatttcc	tgcggttcgg	tctctatcca	acggccgttc	240

tcccatactt	acccttctga	gtgatctcac	ggatgttgat	ttcgggattg	aagtcgtggc	300
aaacgccttg	tgggtggcgc	caccattgca	gtccacaata	tcggataatg	aatctcatcg	360
aaatgatgct	tggccgcata	agccgtatat	acctcgtcac	acccggatcg	aagccgcaac	420
ccaggatagc	agtcaggccg	gcttgcgaaa	acgatcctga	taagcccact	gccaactgta	480
ttcatacttg	cttcgtcgag	aggctcgtag	ttggccgtat	cgagatagtt	caccccacac	540
gcagacaggc	atccatgata	gtcagatcct	gatagggaag	tgctacgtga	tcaccaattc	600
cggtttgaaa	ctctcgaaca	gagccaccag	ttcttcccat	tgctcgcatc	gacctgagcg	660
gtttggatcc	ggacgttttt	gatttcgacg	caatcttgtc	gcacttgctt	ctcgtgcggc	720
tggctaacat	gatctcgtga	atacatcggt	gttcatagcc	accttcttgg	ccacaacggt	780
acctcaccgc	cggccccgat	aatgaggact	ttacccattt	ttatatgatt	cttgtatgat	840
tattactcgc	ctgtagcgca	aagataaaga	gaacaggcca	acaatcggca	aaaagattcc	900
gcccccactc	acccggcccc	cctaaagcgt	aagatgcata	tcatgcagga	tcggcctacg	960
caccaaatac	ttcttacatg	cacgcccata	aacgtgggtg	gtaaaccttt	ttgttttggt	1020
tcgggaagta	aaaattctcg	cgccacaacg	aaaaagttct	cgcaccactt	cgttcagaaa	1080
cacgcgccac	aatcagatca	tttgcggttc	gtatttccga	caaaactatc	cggactaaaa	1140
ggaagttaag	tagtcatggt	acacgggc				1167

(2) INFORMATION FOR SEQ ID NO:956

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 453 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...453

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:956

gtgaagagcc	gagcgaagaa	gatgaagcag	ttcagactga	agaaaatctt	tatgccaaag	60
tgctaaaaatg	attttataag	agagagagga	tattcatctg	gcagtacttt	tgactaatg	120
gggaattacc	aacagatgta	attgcatttg	tgttgacaaa	aaaagaaaac	gacatgagga	180
agttattttt	aatagctgct	tagaaatggt	tatgttcggc	tgtctcctat	tctcaaaagt	240
aactcaacga	taataatatg	agtttgggac	aaatacacga	actgcaagtg	catatttttc	300
gcaaattcca	aaggatttgc	tggaaaatat	ggataaaatg	ggctggacaa	ttcgtcaata	360
ctcaatgaat	atgaggggag	atatttttaat	ttatttttcaa	tatagaccct	caggttttta	420
atcttgtcgg	gaaaaaagtc	gcttttgggg	aag			453

(2) INFORMATION FOR SEQ ID NO:957

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1008 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1008

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:957

ctacgatgct	cggcgccacc	ctgctaagg	cctataaaact	ctacaaggag	gcggaataga	60
aattttcaga	gaacacatga	cgtgctcct	cgtgggcata	ttgtggcctt	catcgtagca	120
ctggcgcga	tcaagttctt	tatcggtacc	tcaccgcata	tggtttcaag	gcattcggct	180
attatcgat	cttgggtggc	gtctgcttat	cgtattgatg	ctctcagggg	tatccttagc	240
tgtctaatac	gaaaaatgaa	acaaataaat	cgtccgctcc	acctgcgcga	gggaaagtac	300
tatacttcga	caaacctctc	acatggactt	cgttcgactt	ggtaataaat	tccgctatcg	360
ggcttgtcgt	cggatgggta	tcaagaagtt	gccgtagggc	atgccggcac	attggatcca	420
ttggcatcgg	gcgtgatgat	ctgtgcacgg	gacgtgccac	gaagcaaata	gatgtgctgc	480
aggccggcac	aaagagtaca	ttgccgccat	cagactgggt	gctacgacac	cgagtttcgc	540
aaggaaaacg	aaccggatgc	tttcttcccg	tacgaacata	tcacgcgcaa	tcgatcctgg	600
acatactacc	tcgattcacg	ggaacgatag	aacaggtccg	cccatattct	ctgctgttcg	660
cgtgaacggg	aaacgcgcac	acgattggct	cgaaggggga	aagagggtga	gatgaaaacc	720
cgtacgttgc	agatcacgag	atcgaactac	tggagtatgc	cctacccttc	atcacgctac	780
ggatgtatgc	agcaaaggca	cttatatacg	tgctctggct	cgtgacattg	ccaagccctc	840
gaatcgggag	gacatttgga	ggcattgcgc	aggacaagag	tagcaatgag	cgtatcgaag	900
actgcctttc	gatggatgag	ttggaacaat	gttcgaccgt	cttgggtttg	cttatgaacc	960
ggagttcgaa	caaaaagagg	caatccgtct	tccacaccta	caaataaa		1008

(2) INFORMATION FOR SEQ ID NO:958

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 699 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...699

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:958

taaaatgatg	atgacagact	gtttttcggc	ggctgcagtg	gtcccaaagc	ttaccgtcac	60
tcactttctg	tggaatgatg	acttctcaat	cggtttcaat	tcgatggggg	taggttggat	120
ctacctcta	ttcgaagggt	acacacactt	cttgtcgaag	taaaacatct	tgctccaggt	180
tggtatctacc	ctctatcgaa	gggtacacac	aaccatagac	gtaaggcata	cccgtttcga	240
tctgtggatc	taccctctat	tcgaagggtg	cacacaacat	aagactatat	cttaataaacc	300
aaattctgtt	ggatctaccc	tctattcgaa	gggtacacac	aaccaagggt	cgggttcttg	360
accttacctc	cagttggatc	taccctctat	tcaagggtac	acacaactat	aaagggtttgt	420
tcaaggaatg	tgctaccggt	gatctaccct	ctattcgaag	ggtacacaca	acgatgcgga	480
caacgtccct	tactccgtct	tggttgatct	accctctatt	cgaagggtac	acacaacagc	540
gattagctcg	tcgcgcgaca	cgtcttggtg	gatctaccct	ctattcgagg	gtacacacaa	600
catgattctt	gattgggtgg	ttgggcgttg	gaaatgtcag	tagtgtgggg	attcttctctc	660
gttggggcct	tttcgctaaa	tttgacgcgg	acgaggtgc			699

(2) INFORMATION FOR SEQ ID NO:959

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 964 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...964

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:959

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cgtcgaggct gtttcggtgt agtatcggac atgtcaagag acgtatttga ggtaggaggt      60
atgtgcttga gccggcgaag gagcagtagc ggcagcaagc gaagatgacg aaagcgagga      120
tattggtcca agcatatttc agggaaatcc atcaagggca cttgtcacat aagagagata      180
gtagtgcctc aacggaatag cgcgctggcg gactgcatga cagtcggcat accgagagcg      240
ggaaagaggc tccgcataatg gagaaagaga taatgccccca tagggaagca aagcaagtcc      300
caatctcadc gtcgggagggt tgacgaacat cagtacgcca aaacctgaca agcgaggatg      360
aagagataca tgactatcag catcggcaag aaccgccatt gatcgggtag gagaggaagc      420
catacagata tacgtctata aggtgccgat gagcatgaat gccacggttt ggggtagcag      480
cttgcccaaa gggcgatgga catactgccg ccggccgtct ccattccattc tcgagctgtg      540
atctcttgat ctccatggct atgctacaca ctgtgacct gaagatgaca gaccagtagc      600
gccgggtatc atgatattgc tcaggtagat ggagtagtga gccacggatt gcctatgggg      660
tgctgttcga taacgatcgg ctgtagcagt ccattggcctg gctttcgggtg gctcctcggg      720
cataaagtgt cgaacagcgg ctgcaccggc taccagttcg ctgatcatct tgttgccct      780
gaagggagcg agccaccac catataggca tagttggtat agaaggagag cttggcttgc      840
ttctgtgcgt aggcacccc tgtcattccc tcgggtatat agagtaaccg tatactctgc      900
ctcgtgact gccagccgag ccttacgcac gtttcgaact gttgaccatt tgggttgctt      960
ccat

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(2) INFORMATION FOR SEQ ID NO:960

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2670 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2670

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:960

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gtggaggatt tgttgtctta tataggaagt atcagctatc cgaacagcaa gcgaagcatc      60
tggtcgggat ggcgcagatg ctttgctctg attttgagga gtggtaccgg acgaggtgtc      120
ggaactaacc aaactgcccg gcgtaggcgt aagacagcca acgtgatagc ctccgtcgtc      180
tacggcaaac cggccaggcc gtagatacgc acgtattcag agtatcagaa aggataggcc      240
tgaccccggg tcgaagcttc cgtagagac ggagcgagag ctggttcgct atatccggat      300
gtgctgatac cgaaagctca tcactygtctg atcctgcatt gacgtacgtt tgtctggctc      360
gcaagcccaa atgtgcagac tgtggcatag cacattctgc cgcactact cgaaagtttt      420
taagaagaac agtacagccc tccgaaaaaa ggggaatgat aaggcctgtt gtgcaataa      480
tatccgcaca atgctccata ccttaattcc ggaggcaata tgaatcgaga aagctttttc      540

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tccctgcttg	tctcttattt	gctctcccgc	tccatctgca	aagcatcgct	ccatgcaaca	600
acatggcaga	tacgacttgt	atatccgatt	cggccaaatg	tttcctcctg	ccatcggtgt	660
ttaccatgta	aaaccgatga	aaaacaattg	cggcattccc	tgcctcttgt	agctgcttct	720
ctccttactt	tcaactggat	gacaatatcc	gagagcttcg	ctttaccggg	gccgggagct	780
ttcaaccaag	atagacaacg	tcagtcagct	cgttcctctt	atggcacagc	tttgatgagg	840
ggattcggct	ataagggacg	cagcaaatca	tggggaaaaa	tggttggtcg	gatgccttgg	900
gtatggcact	tatgggtgga	atggtcaatg	cggaaaaatg	tcgttcggac	ggttgcgctc	960
ggatggaaact	gctgccaatt	atacccatca	ggacatacgg	caacagcttt	cgctgcgcc	1020
acacttttta	tctcgaatac	ggctcccga	gcccttggtg	tagcgcggca	ggctatacgt	1080
agcctccctt	acggggatca	gccgtatcgt	gaacaatcgg	cattgggcag	cgatgtgctt	1140
tgcgagagctg	ccgtagggat	attggtcggg	gaattagcta	ttggatcagc	gatctgatct	1200
tccgcgatcc	tacgggctac	aactaaagct	gaccaagaaa	caggaaggaa	ctctggagag	1260
catggtcatt	tctcttctac	cgggaataga	tacatcaacc	ggcagatgga	ctttgaaggc	1320
aagcagtaga	acgtaccgac	gctttcggca	tgaacctgaa	gacgaccttc	aaccgagctt	1380
tgctcgctgg	gtacgaatcg	gatcgcaatt	cagcgtttcg	aagagaagca	gaaagtcctt	1440
acgcgagaaa	ggccggcaaa	agttttcgta	ctccggcgat	ctcactcgga	ctttctgccg	1500
gtgtagaatg	gcatccatgc	agagagcatc	cgtctgggca	gagatcctgc	cctcaatact	1560
gtttcgtaag	actttaccaa	tgcccaagac	gagccggacg	aaatgtcttc	gaaattaacc	1620
gacgctcgag	tttccaaccg	gcgttccaag	tgggagtagc	atacagggtat	ccgatcacat	1680
gggtatagaa	gctcatgcag	ggtatcagct	tggcgggcag	tataccatct	tatggaggaa	1740
acatccactt	ggtcgatcat	caaaagagag	ctaccgtacc	ttaccgggga	tttgagtttg	1800
cagtcggact	acattctatc	ctttccgctg	acgatcgagt	ggaaatggct	gtacagagtt	1860
caaagcggtg	agcacatcgg	gcacctcgcg	caagcgaaacg	atcctctttc	cccggactga	1920
cgaatctcgc	accgacgtgt	gtgcgctgcg	atatattcca	caacatgccca	aagacttcgc	1980
tctgatagta	agggtgtctt	ttccttgcca	ccagatggaa	actcatctgg	tccccacgca	2040
atacgcattt	ctctatacga	gcgaacggcc	gaggcgctgc	aggcgaggta	cccgatatcaa	2100
ctcctctcct	ccggcggaat	tttaccgaaa	cgatcctgca	tacggcgccg	gaatgctcga	2160
gctcctcgtc	cgtaggagaga	ttgtccaact	cccagataaag	aagaagcggt	ccgaatccaa	2220
cggcacatat	tcttcgggga	aggaaagttc	caaacgctct	cgaccgttgt	ctccactaca	2280
aaccgggaag	ctgaagggaat	agctcttggc	tctctgcata	aagatcggca	aactcatccg	2340
ctttgagttc	ggaacggctt	cattaaaaac	cttactatac	gtctcatatc	ccaaatcggc	2400
atgaatccgc	tctgctcggc	accgagtaca	ttgcccggc	cacgtatatc	aaatcctgaa	2460
gagcaatgcg	aataccgctg	ccgaggtcgc	tgaagtctct	atggcttgga	gccgacggcg	2520
cgaatcgctg	ctcaggacac	tgagcggcga	ctcaaaaagat	agcaaaaaggc	tttctgttg	2580
ctccgtccca	cacgttccga	agctggtgca	actnactcag	accgtatcgg	tgggcattcg	2640
tcaatgtaat	ggtattggca	ttgggcacat				2670

(2) INFORMATION FOR SEQ ID NO:961

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 863 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...863

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:961

tggcgagccg	atcnccgnag	agaatatcgg	taagcgagtt	gctgccgatt	cgataccggc	60
cttcaccgca	ggaatgcttc	tgtactgaac	acgctgggtg	tgtactcaaa	ggactggttcg	120
tccctgtagg	aataggtctt	atccttgtgt	cgttttcggg	cttttcggcc	ttatattaga	180
gctgtttgca	gacggtagct	ggcacatgct	cttttgactt	cggactggat	ttctattcct	240
tcttgatgat	actctgtgcc	acgatctccg	tattttattat	agtagccgtc	ccggtatggc	300
catcgttttc	agacatcaag	ggcaggggag	aaacgggatt	attctgcagg	tctcaaatgg	360
ctgggcttga	ccatttggct	tgctgccgct	gtctattggc	cgtagtcttc	atattgataa	420

cccgtgaact	gggtttgaat	tcttccctcca	tcgccattca	gtatgatgtc	agaaatgcct	480
aaaaaacatt	aggttccttt	taggacaatc	catagtaaag	gtttttgcgt	ttttgttcaa	540
tcttcgtttt	agaatccttg	cttttgaaaa	agaataacat	cagctattat	agtatgagcg	600
ataattgtca	tttgactgag	aaatcatttc	gaagtgtgtc	ctcccgaagg	attccgtcct	660
gactttattt	ttccgaattt	gtctccaaac	tggtattgga	tactcctttc	tattgtcctt	720
ttcgccggat	ggggttgggtg	aagtataaga	gggccggcat	ggctcccagc	acctatttta	780
cgacgtaatg	gcacgattcc	ccgaaggcgt	tcagagagca	tgctccggtg	ggtgaatcca	840
aactacaatg	tatatgataa	tta				863

(2) INFORMATION FOR SEQ ID NO:962

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 630 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...630

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:962

ttattcaaaa	agttcctcat	tttcggacag	atgctgttct	tgacttgcta	atagtgttct	60
tctcactccc	ttattgacag	atcattcgcg	tgatctccct	cgaataggga	ggtaaccaag	120
cagtactacg	taccggagga	aagacttggg	gcatgaact	gaccgatctg	ctttttagcc	180
ggccggatag	tgggcacagc	tactcgaccg	gttgttccta	ctccttgaaa	aaattgccga	240
aagcagctct	ttcagccagc	cgattcggag	tatgaccaat	cggaggagac	caatatatgg	300
agttggagca	gatctatcac	tatcgcaata	tgctgaacag	gctagaggac	tggtcgaatc	360
ctatgccatg	gatatgtcag	ttcgttctgc	agtcttctgt	tgcaaggatt	ggtatccgga	420
gtgagcatcc	cattcgaggg	aaacctctgg	tcggcctgca	aatcatggga	atagatcaaa	480
cgcgatcttt	gatttcaaa	atctgatcat	tctctctgtc	aacgagggta	aactcccatg	540
cgtgtctatg	aaacgacaat	gataccctac	acattgcgca	gagggtatga	cttcggtcaa	600
tgaggtaaac	gaagccactc	aatctatgat				630

(2) INFORMATION FOR SEQ ID NO:963

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 891 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...891

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:963

aatgaaaact	gcagaagttc	atcaggatca	gacgatattt	caattgctta	tcatgagtgt	60
gtgattgtag	ttattacgga	agactyaaaa	gaaaaagcct	tgcacggcac	cgaatcccga	120
atcgaaaggc	ttatcccaa	ttattgtgca	tgtatcagtt	gtcgggtataa	gtcatactgt	180
aaacgccgat	acgcgcgtct	tatttttttt	tccgagctgt	agtttgacgc	cggacgggaa	240
catgaattat	tcagctggga	ggtgtacagc	gaattggaag	ctcccgaac	ctgagcttca	300
caggcagcag	tacgagaaca	aggtccttgg	tgatataagg	cttccctcgg	gagtcttctc	360
cgtattgttc	ttgatatgct	ccatcagcag	gcactgatat	tgctaaaccg	atactcccg	420
ttcttaattg	tgtatatggt	cataggaatg	ccgtgcgagg	ctgcatcagc	tcggtctgtt	480
cttgctcgaa	aagtttctca	ccgaatcctg	cggcaagagc	aacaagtagg	agggcggacc	540
agcatcaagc	cctcagatgg	cttcgaagca	ctgatattga	actgtgctca	ccgatttgcc	600
aagccaaaga	ggaagacaga	ttgctcgtga	aagcatcgta	aactgtctct	tactgattgt	660
cagttgcgtc	atcacccctg	ccggaccttc	acacaagtga	gagaatcatt	ctcctgcaac	720
aggtgggata	tttggagttc	ttgatatgat	tgacctgata	ggattcgcgc	gtgtttacga	780
atgttctgta	gctgttgtgg	tggaatcggc	cgtaaccttg	tagctatnga	agaggccatc	840
tgcgtattgt	cacgctgagc	acaactccc	taccctcgt	cgagtcacat	a	891

(2) INFORMATION FOR SEQ ID NO:964

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 968 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...968

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:964

cgatccggca	gccggatcgg	tgctggccat	agccgaagct	ctgaccaatt	cgtctttgct	60
ccgcttcgta	atggtatcga	gggtgtgagc	ctgtcggcaa	ctggatgtgg	ccctgccgta	120
acgaaggcga	agatgcccg	ctgtacctgc	cgtggaagcc	tgctcggact	ttgccgtcga	180
tctgggcatc	aacatccctac	cggcaaggac	tctctgtcca	tgacacagaa	atatgaggac	240
aaaaagtgct	gagtcccgg	acggtgatta	tcaagtgcgc	agccgaagt	acagcattcg	300
tcgcacgtc	agccccgtcc	tcagccatat	agccgctacc	gcttctacta	tatcgatttc	360
agcttctgcc	cgttctcatt	gggaggatcg	gctttgccc	gagcttgggt	actatcgggt	420
atgaagtc	cactgtacgt	gtccggaata	cttccgcgat	gcgttcaata	ccgtacagga	480
actcattgac	agggtctgg	tctggccgga	cacgacatat	ccgcaggcgg	tctgattacg	540
ctcttctgga	aatgtgcttt	gccaatgtag	taggcggtct	ggaggtggat	tggataacct	600
cgtggaagac	gacctgatca	aagtcctctt	tgccgaaacc	cgggtatcct	cattcaggta	660
aaggaccgca	aagccgttga	taagatctga	ccgatgccgg	catcggtttc	ctcccgatag	720
ccaagccgac	ccaagccgac	acctcttgat	acataaagac	ggagccgaat	acctgttcgg	780
tatcaccaca	tgcgcgacgt	ttggtatgag	tgcctctacc	tgctggactg	cttcagagtg	840
gcaatacctt	ggccggcaac	cgcttcgaga	actataagga	acaccggctc	tatatcactt	900
ccaagcaat	ttacgggtga	tctgaagcga	tggattggat	cccgatcgaa	agacggcatt	960
cggcattc						968

(2) INFORMATION FOR SEQ ID NO:965

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 725 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...725
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:965

```
ccattgtgta atctccccct tccatcacat gcttttgccc atccacgac gcaccttgtg      60
atcgagattg cagtcaaggg tgtccctcat actaaagagg catcgaagaa aggtgctgtt      120
ctgaaaagca aacgagatct gaatccttat cctgtttttc aaacgatatg gaagcatcgc      180
cggcacgtgg catcaggccc ccacttata gtagattgta tagctgaggc attctccggt      240
cctgcgaaat cgttgagatg gggttgctga gcttgcaatg atatagagg gatgttatga      300
tgtatagagt cgtgaggatg atgactatgc agttgaatgg attcgtttct tgcttatatt      360
ntgttttgc ttcattttct cttttctttt ctccaatgat tcaaatatag gcaataagcg      420
gttagtagaa ataaaaggag gagcctgtgc cagacctcct cctcaaaaac gaatagactc      480
tttagtagtt ttgggtgtaa atactcccaa agttattttt tattcgaatt atagatttcc      540
tgagtttttc gattagcttt tcaccacgaa gatctcgctc tataataggc cgtcaggacc      600
caacagtatg acttgcgga taccttgnat gccatactat ccgtagccac attcttagca      660
tcgatatctg aggccatacc acgttggaact tctttgcttc agtgatcttc atttatccaa      720
actac
```

(2) INFORMATION FOR SEQ ID NO:966

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 821 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...821
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:966

```
cacgctatgg ccatagactc gcgagaagac tttgtgtctga cggntccgca atgcaacgat      60
ccgtatgac agcgtggcat agccgatcag cagcagcagg agcttaagaa accctgctct      120
tcgcccacgg tacagaagat aaagtcctat cctgctcggg cacatatatt agtttggctc      180
gtgtcccttt caggaacctt tgcccataaa tccgcccag ccatagacta tcttggaactg      240
gtctaattgt atcctcctcc ccgcaaatcg tctctattc ccaaggcaac cctgtacgca      300
tctgctgggt gggctgcac actttgttga atacatagtc cacgaataga agtagccac      360
cgaacacaag gcgaaaacgg ctatcagcgc atcgacagta cataccgctt gatggccatt      420
gacaaagccc atacgatcaa tctgccaaga gaccgtatgc cagaggaca aaatccaccg      480
acacgaagta gacagcata tggctacggc ataggtgaca gcagtaagcc ctgccgccag      540
acatagaagc gtcctcgctc cttggtatag atccgcacga ggaagaatct atcacaaaag      600
ccatcgagac cacagaccat tcggcggtcat ccgtatgcc caccacacat cgccctgcaa      660
cttcagagcc gtgacgaaaa agaggaggca cagaaggcaa tgccgatgaa tacgccggac      720
attccctcac gataggggca aggaaaaaag ctatatagac gagggcagac cccgtttcgt      780
ctgacaggat aagcagtagc ggatgaggat aatggcaaaa g
```

(2) INFORMATION FOR SEQ ID NO:967

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 472 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...472
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:967

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ttgaaagaaa cggaaggaaa aatctcgcag acttctttat ttgagcgatc ggctccgggt      60
ttgcctgctt tgatgtaggc gttcatggat ttaatgtctt cgggttgcag cggctacgggt    120
cgcagcggta cagctccgtg aagggattgc atcgacgatc ctctgcaaaa ggtcgccttg      180
ggaggggaatg cctttgtggc gaagtactgc tcatagggtg attcgacgaa agctgtggta    240
ggcccatgcc acggcggtcg aggagatagc cgtcggccag ctccaccgga gtgcgaaacc      300
atcgccacga cgaagatcgg aaggggcagg acgtgccacc acaacttttt gtcagccgag      360
aggggtgatag gcacgagatt gcgatagtcg cccgcgtctt gtaaagtatg atcggagcca    420
atgccatagc cggcgtcatg gtgctactcc atcggggcca ttgccctcct nt              472

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(2) INFORMATION FOR SEQ ID NO:968

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1342 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1342
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:968

```

agttcagcac cgatttcgtc cagccggaca ccgcttttga aagcgtacgt gctggagtat      60
ctcagcacgc aacttcaaat ccggacgttc tatcttgaac aggtagcacc ggccatacga    120
gtgaccaacc ggtcctccat cccgttaggt ctacaggagg tttgtccgac gtcaagacta    180
tctgtttgcc aagcattaga ggtgattgaa cacttggaag aaagctaatt gcgttttctt    240
cttgcgatca accattggat gtcacgatg atcagtacat ccacttgctg gtagatgcga    300
tgaagtcatt gatcgtcccc atacgggctg ccgtagtga a ctgatctcga acaaatgact    360
cgatacgtat agtactttca accgggggtg cactctctga cacgaaggcc caaggcatgg    420
cacaagtgcg tcttgcccac acggaagctc catatataaa gaatggattc atcggcgtat    480
tgcccgggct cgggcgatgg cttcagccac tgagcgagct acatagttgc attcgctctg    540
tagaagtgtg ggaaattgag cctgctattg agctgcgtgt cgaaatccgt gcttcgctat    600
gggtggctgc attgggcatg tgccctgtgta gcaaattaca tcgaactgtt cggctgcctg    660

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tccaccgtcg	gcacaaccgg	ccaatgcacc	gtgccgggat	atttgggcga	actgttgtct	720
acaagggcat	tatacgtaat	gatgcgttgg	gacctataac	acgccccaac	accgtacgca	780
gctgtctacg	aaattgccct	ccaaaaactc	acagaagaac	tgactcggca	ctttaaggta	840
agcgtatcgc	cctcgataga	taccggtatg	ataggcaaga	acatgtacgg	tatgtctgct	900
catccacaat	atcctgaagg	atgcgaagac	agcgtcccat	atttcattta	cattgggtcga	960
gtggtagttc	atctaaaaaa	tatcgttttg	agagcagtcg	ttcattgctc	ttttggggat	1020
agcaaaggtc	aaacaaaaga	gtaaaaaac	aatcgacaaa	aagtgtagta	taattcagtg	1080
aatcgtatct	atattgtttt	cagatgggta	taaccttgag	atataaaagc	gaaggaaaca	1140
acgctattcc	actgcattcc	agacacttat	acgaaaccga	ccaaggcgcg	accgagttat	1200
caacacccaa	gacagagcct	cgattagttg	tgtacaaaga	ggttgcgagg	aaggagagaa	1260
aaatttttca	acagatcttt	atttacaatg	aatcgaaata	aggaaaatct	ncggtgctcc	1320
ctaaatcagg	atgtatccaa	tc				1342

(2) INFORMATION FOR SEQ ID NO:969

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 852 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...852

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:969

atcttcaatc	cgagaaaagt	gggctcagtc	aatcctgaag	caatcttcag	ccatcacgat	60
agaccgtgta	gggtataagaa	cgaacagcct	gctccggcat	ctcctcagta	gcgactatct	120
cctgcagagc	ttctacctct	gcctctatgc	gtctgtctcc	tcaaaccggg	gcaacgaaag	180
tcaatgattc	caacactctt	cgttcgyaat	aatctcttga	gctgctactt	ccaatggcat	240
aataacatgg	gtaaaaccag	ccaaagcagt	gagcagactc	ttttgaagta	gttcgtttca	300
tagttatctc	cttttttaat	tagtatctca	tcttggtgct	tctttcgcct	cttaaataag	360
gtgatacaca	aagataaaaa	tatatctcgc	cgcaagctat	tcttcaacct	aaaaagtttg	420
tatgacgcag	gaatcggaat	ctttttcttc	gacaaaattg	aagtcaatca	ggagcaagga	480
ggttctcttt	aggtcaaaaag	actgatgcta	cttgctttta	taatgtttca	ttgcttccgc	540
atataattggc	gaatggcagc	tatccgattg	gcacgcgtcg	gatgcgtatc	agaaactcta	600
cccgcccggt	accttgggca	gccatctttt	gccaaaagta	attgccgnat	tcgggttata	660
accggccatc	gccatgaaga	caagtctatt	ttgtcggcct	catactcctg	tttccgattg	720
tagggtagcc	gtaatagcac	ttgtgatcca	atgccatagg	cctgcccgat	gaccgtttgc	780
agtgtgctga	cttggtggag	actgctgcgc	ccagtatatt	accacccatt	tgggtagata	840
ttcctgactg	at					852

(2) INFORMATION FOR SEQ ID NO:970

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 678 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...678

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:970

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gcgttatctc tatcatagtg gatattcgga gcatccgct gccggcacct tccctgctac      60
cgtttgaccg gacatccgaa gttcagatcg atcaagatcg gaccggccga ttcgcatagt      120
cgggcaagcc tctaccatcg aagccaaatc ccgtccgtat atctgtacag ccatcgggcg      180
ttccgattca tctatgccat ttttcggaat gtgccggcta cttgacgaat cagggcatcg      240
gcactagaaa ttcggaataa accagatcgg caccgaactg cttgcacatg atccgaaggc      300
tacatccgtc acatcctcca tcggagcgag tagcaaaggc tctccccgag gtctatggca      360
cctattttca tgctccttgg gctatggctt gtccgtgcgc agagccgctt gaatatcggc      420
acatacgttt tcctctccca aagctctacg atgcctgcag tggcaagttc ttcgtggacg      480
tccttgcgca accggagagg acgatgctga ccccttcttt ccggctcatt ttgatcaggt      540
ttccagattg tgcacccctg tcgaatccat aaacggcaca tgccgcatct gataatccga      600
acatcgggat ggtcgcccaa tgtgttcacg atctcttgaa tctgttcgcg ataccaaaga      660
agaaaggccc ttcgattt

```

(2) INFORMATION FOR SEQ ID NO:971

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 709 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...709

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:971

```

gcgccccaat gccaaagatc ggagggggaaa ctttcggcct gaacgtaatg gtgaagagga      60
cagggatcag accgaaaaaa atgaagactg cgatttcgcc aatccatgat aggccaaagg      120
ataaggaccg gcactatacg acaaagccca atggctacaa cgactcccac gaccagcaac      180
caccagttgc taatggacaa agcagaaaac cgctaaagcc gagcagaaaa agaaatgaga      240
aaagactgcg agaacctgtc gtcccgacaa ccaacctttg gagatcccac gttcaagcct      300
acacgctgat cggatatccg acccttctta tagtcgaacc aatggtggct atattgctga      360
ccgtttgggc agacaccgct acgatcaaag ccaagcggcc tgtggccagc gaaaattgcc      420
gtcagctata gcataagcaa tgctacaacg acaggactga cagatgccgg cagggtatga      480
ggccgtagca agcagagcaa gctttgagac gcgggggtga tccgttattg ctcatctgaa      540
aaagacttcc cggtagcgga cgcataattat aggaagaagc catcacggtc catatgctcc      600
ggccgaacga atagccagat aatcgccgcg tttgagtggg gcatgagcaa ttcacgctcg      660
aatacatcgc tggatcgcag attgggcgac aacatcgatt tctctgcag

```

(2) INFORMATION FOR SEQ ID NO:972

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1058 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1058

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:972

actcatggaa	atgccgactg	tttgggggata	gggcaggggac	tcgacgtcat	actctaacag	60
cccgattgaa	ccaatacatc	ttcgcaggga	ttatgtacag	tctatcatgt	agttcggctg	120
tagcagattc	aactattaga	tcgcttgaga	agtcctgacc	acatacgcac	ctaacaaggg	180
attctcggct	ttcttagagg	aagcagagcc	acccaatatg	ccgtttatgt	agaaggcccc	240
tgtccccgtc	agaattttat	gaatattttac	cttattcttt	atatcacaat	ctctgactgt	300
tggtggcgaa	atgttgctat	catccattat	caataactaat	tctttgatac	gtattcgaaa	360
ttcaacttta	atttgcttgg	cgaccctgca	ctaacattat	ggctcatggc	atggagggtta	420
gtaattgtat	tacactacca	acaacacccat	tataagcagt	ccgataacaa	taaaaaatgg	480
tggtgccta	aaataccgga	aaaaggagtt	ttgcatttta	ctaataatgg	ctccatacag	540
tcatgtccgg	aggaactctg	gaaataggca	atcaggctaa	aatatccgag	agaccggtgc	600
taacccccacc	tttattaccg	tttacggcga	tggtcttcga	ttaacaagca	ggtagagata	660
gacaatatag	accgacttaa	cttgtttcta	cgcattcggc	catgcccata	tttcattttg	720
acagtgtgaa	attcacagtg	ccccgctgta	tacaacgaac	tgtattgttg	agataagcaa	780
ttgcaattta	ccaatcgaag	tgacattatt	tcaaagaatt	gtgacctaac	cgtgaaaaca	840
gtatgtttag	cagttcgggg	ataacggtat	tcaagcctat	ggtacaagct	ccatcaccgg	900
attatctaca	aaagcaaaga	ttaccgacaa	tctttttttg	cgacaggaaa	cttcgcctac	960
catatcaca	acacgccagg	ttaacagcaa	cctccaatgc	tgccatcaag	ttagacaata	1020
ttcctgagtt	taccattttcc	ggaataaaaat	agtcaatg			1058

(2) INFORMATION FOR SEQ ID NO:973

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 530 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:973

ggcctcccga	ggcaagagcg	ccaatacggc	cgtgatgtcc	ttgtcattgc	catgccgaag	60
acgatacgca	gctgtcggta	agtctgtcgt	ctcagttgtc	ggtgatcaga	cggaatccgt	120
cttcgtttgt	tccggtatcg	catacgaccg	tggctgctcg	gccaaactgct	gccaacggcc	180
aaacagccct	gacattccgt	aacgtgggca	aatccttcac	ggacgtgttc	cgaagaaaga	240
ttcagccgca	tcgtttggaa	aggacctcca	cggcacagag	aatcgtacgc	gcgtctcttc	300
ctgagccaag	ccggtcagtt	cgccacgaac	cgatccatag	tccgtgtttg	gtatgtatag	360
caaccgtttt	ctaattgtcg	ggaaatgatt	accccattc	ttgagcaaag	acaatatccg	420
ttctttcttc	atcggttttg	tctgaaaggc	atggcgcaca	cctcctcggc	tcggccgacc	480
acaacgggga	tccggacttg	atgatcccg	ccttttcgaa	gctatcttct		530

(2) INFORMATION FOR SEQ ID NO:974

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 712 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...712

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:974

```

ggcggcaggc atccccacgg ggcgacgct cggcaggacg atagtcccg c attcgacgag      60
cctacaccga ttccacttc ggagcaaact attccgaact ctccactccg cgaatcttgg      120
atttcttgat ggcaaaactc tcttctcgtg atagagcgtg gtgcccaccg ttgccactac      180
caccttttgt cctgcaccac attgggcgca ccgcagacga ttgcaaagg cgcatccgcc      240
cccactctac cgtggtgata tgcaaatgat ccgaattcgg gtgttcctca caagcagaac      300
atggccgatg accaaacctc gcaagcctcc ccgaatcgtt tcgtctcttc tacaccgccg      360
gtctccagac cgatggaagt gagcgtgtcg gcattctctt cggagagagg gtgcagggca      420
ggtagctcaa gagccatttg ttgagatatt catctttgtt actccttagt tgtatatgtg      480
cttcagagac catgggtcag gtctcaaacg cgattattat atgtaagccc acaaatttac      540
gtttttctcg gggagtgttt gttttatggt cgtcttgccg tggtttgccc ctccgagtgc      600
tctgcttttc gttctcccaa agattctggc tttcctttcc ggtttggaaa aaattcgggt      660
gtatttcngg cctgtaaaac gtggttttga ggaaatattt tttggttttg gc              712

```

(2) INFORMATION FOR SEQ ID NO:975

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 527 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...527

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:975

```

tgctttctcc tctgaaaaca cagttagagc aacaagtcaa ttggagttca ccgtcttcgg      60
ctcttatggc agtagcgagt tctttatcaa cgttttctcg gattcctcat attggcaggg      120
atcatcctgg accgcattgg cgtgcgttca ctgccatttt atccggcagt ttgatgcttt      180
tgggtgccct tattaagtat atgccttgag tgaagtcttc aatggcggcg gcttcggcta      240
cgatagctca attccttttc tatgggtttc ccgccatctg ccaagctggc ctgttcgggt      300
ttgctatttt cggatgtggc tgtgaaatgg ccggcgtaac cgttcccggt ctatcgtgaa      360
gtggttccat ggcaaagagt tggctttggc cagggacttg agatggctat tgcccgtttg      420

```

ggagtcttcg ccgtgttctg gcttcaccta tcatttcaaa gcagttcgaa ggtacgcttc 480
 agagcggttca gtaccgggtta tttccgttac ggcactcctt tcacg 527

(2) INFORMATION FOR SEQ ID NO:976

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 747 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...747

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:976

taatcacccg	agccacatcc	ggcatcggtg	cagcttcggc	tcgccgcttg	catcgctcga	60
ttataacott	atcatcacgg	gacgacgctc	cgaacgttgc	aaaacattgc	cgatgaaatc	120
agagctgaat	accctgtcga	aatcctccgc	tctctttcga	tgteccgaat	cgcgaagaag	180
tagaagccca	tttggggaatt	tgctgatcc	ttggcaggcc	gtttccgtcc	tcgtgaataa	240
tgccgcttgg	cagcgggact	cgaccccata	cagtccggtg	acattgaaga	ctggaacgta	300
tgatagacac	caatatcaaa	ggactcctct	acgtaactcg	cacatcagcc	cgggtatgat	360
agcccgaaag	gccggccata	tcataaatat	cggctctattg	ccggcaagga	agtttactct	420
aacggcaatg	tctattgtgc	ccgaagcatg	ccgtagatgc	tctttcgaaa	gcgatgcgta	480
tagatatgct	ccttatggca	tcaaagtcac	acagatttgt	cccgagcag	tggagacggg	540
ttctcgctgg	tgcgcttcca	tgatgatcag	gccaaggccg	atgccgtgac	aagggcttca	600
ctcctctctg	tgcgaacgac	atagcggagt	gtattgcgcc	gtactgaacc	tgcttgataa	660
tatctgtatc	aacgatattg	tggtcagccg	aagcgcagcc	ggcagcggac	acttttcaaa	720
caagttgatc	acaaaaggcc	aaacgat				747

(2) INFORMATION FOR SEQ ID NO:977

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 670 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...670

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:977

atgatgcagg	acgcgattgt	cggctgtttc	ttgctccctg	catgatgcag	acgcgattgt	60
cggctgtttc	ttgctccctg	catgatgcag	gacgcgatgt	cggctgtttc	ttgcttctctg	120
cacgatgcag	gacgcgattg	tcagctgttc	ttgcttctctg	cacgatgcag	gacgcgattg	180

tcagctgatt	cttgctcctg	cacgatgcag	gacgcgattg	tcagttgatt	cttgcttcct	240
gcacgtgcag	gacgcgattg	tcggctgatt	cttgcttcct	gcacgatgca	ggaccgattg	300
tcagctgatt	ctgctcccat	caatgcgcta	actatcagct	attgcaacta	ttttatagga	360
cttttattga	agtcttttgc	cgcagagctg	atcttaagtg	tttttcagat	tacttgaggt	420
ttgcagagag	atcgcataaa	gtctcctttc	ttcgctcaaat	caatgcttgt	gtctgtcttg	480
atcgatatga	gaggtgggaa	ggttattgtg	caacagtctc	aaaatgtgaa	gacgctcgga	540
tcggtcaaat	gtttcgacac	gattactgat	ttttgacctt	tctgagtaca	actttttccc	600
gtacacatca	gaaatgatgg	tgtacagatc	ggatgaaagc	cgtttgccga	ttgtggtagc	660
tttcagccgt						670

(2) INFORMATION FOR SEQ ID NO:978

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2736 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2736

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:978

aaaagagacg	acaaaaatta	ctgcaatagc	cataattgat	ttatggctta	aaaagggggt	60
gttgatgtac	attccgtact	atgggcgcaa	agataatcca	atcccaattt	tgccgacctc	120
taaaacgctt	tgagaatgat	atattattat	acgtttttgga	agcttcttcg	atcaggagag	180
gattgcggtc	aggcgtttgc	gaggtttgtg	ttgacggggc	gaaaaatgcc	agtggttttt	240
gttaatttgt	tcattcctca	tcattaacag	cttcgcttat	gaaaaagata	ttatgacggt	300
gatoctcatt	tgtattttat	cctcttttcg	tgtggcgcaa	gtggagtgcc	acgaatcgat	360
gatatgagag	gaatgcgtat	ggacaccgtg	tcaagaaaat	aaaggattat	gcacaacggc	420
ggttctttta	taaggtgggt	ttgtggaaga	tacctgaag	cgagaaaaga	aaaccgaggc	480
gcagtgtgtg	tggagatcgg	acggcacggc	agcagcttca	aggatttgta	tcagttagct	540
gggattcttt	gaacgatgcc	gttaccggcg	gaaaagggtc	gatgatgggc	tattcactga	600
gggtgccggg	ttggtgaaaa	agataaagtg	gagaatatcc	tgctgaaagg	gtatcctgaa	660
ggagcggacc	ggcatcaaca	agaggtccat	tgacaggtcg	gtatgagtat	gaatgtccgt	720
cggcgtcttt	cgattgcaga	tcggggaaga	gaccgaagag	atcatggaat	acacttgccg	780
aaagccacct	gccaccacag	cggacgggat	tatacggctt	ggtatacccg	aggtattgcc	840
ctctcggatg	ggcncgtaca	tttttcgggg	attgcccggc	ctattgtggc	catcgcttcg	900
gatgatgggg	aatatgcatt	cgaacttaat	gaatgcaggg	ggagattact	ttcccctcac	960
ctatatttct	gtacgacaaa	aggtgcaaaa	gtattcgcgc	gaagaagtac	gcaagattat	1020
ccgaaacatt	cggagaatta	ttccgagacc	atcatcaatc	agggaagatt	caggcttaga	1080
atccggagga	tattcagcgt	atcagaaatt	tgccgtacaa	tccttgaga	aagaatgaaa	1140
acaaataaaa	cactcagcat	gaaaaggaca	cttttgtcct	cgcatacctg	ttttttatga	1200
gtatgagctt	catacaggca	caggtccacg	tatcgtgggc	gcagaaggga	tgccggtaga	1260
tactgtgccc	aagaggtgga	ggactatacc	aaacggcgat	ttttttacaa	agtccttttt	1320
gtgaagatac	cacgaggcga	gacaaaagaa	cccaagcaca	gtgtgtattg	gaatagggca	1380
gcgaggaggt	tgcttcaaa	acttttacga	gtatgcagcg	gctcggtgaa	tgatgccgta	1440
gctcgaaga	aagggaactg	tatggagatc	tttcgaaagc	ttatgattac	gtcaagaaga	1500
cccaatggcg	gactcccgtc	ttaaaggcta	tccatcgga	caagattatc	atcaatacgg	1560
agatccgaag	tcggttctta	tgaatacggg	tgcccgctgc	cgtctttcga	ttggcagtcg	1620
gggaagagac	caaggagatc	atggaataca	cttgccgaaa	ggccactgcc	accacagcgg	1680
acgggattat	actgcttggt	atgccgagga	tattgcctct	cggatggggc	gtacattttt	1740
cggggattgc	ccggcctgat	cgtcctatcg	gttcggatga	cggagagtac	gtattcgaat	1800
tgaacggaat	gcagagatta	catttcctgc	tccgatttat	ctcaagaaaa	atgcctttac	1860
gaagtcggct	cgcgtgaaga	gatgcgcaaa	acgattcgta	atatccacga	gattatgccg	1920
aagtcgtggc	caattcgccg	gcttttgtca	attccccgat	cggtagact	tttctcatct	1980
gccacctcag	ccgtttaatc	cattggaggg	gaataaagca	tgatgaatag	ggctgtcact	2040

tcgattttgg	cgtattttggg	ctgtgcgtgg	cggggctggt	gcctgtcggt	gctcaggaag	2100
cgaccggcaa	atgcttgccg	gtcgtgtgat	agatgccgag	agccaggagc	ctcttgccgg	2160
gcagtgtgcc	aactcatgga	tgcctccggc	aaaccgcttg	ccttctcctc	tcgaaagccg	2220
acggctcggt	ctctctggag	aaaaaagccg	gcggaaactc	cttagcgtaa	gatatatggg	2280
gtataggaag	atgagcaaag	ccacgatgcg	gctgctcctc	cgctgctttt	cgctttgggtg	2340
ccgtccgacg	tcagctcaag	gaagtgggtg	tacgcgcgga	accggtacgc	aagctgggag	2400
aacgattgcc	tattcggctg	cggttttcgt	ggggccggac	gatcggtatc	ggccgatctg	2460
ctgcgcgaaat	tgcgcgggaat	agaggtctcg	gcaaaccggc	cgtcaaata	cagggcgaac	2520
ctatcacaca	tatgtatatc	gaaggcgtga	catgctgcaa	aaccgctaca	atctggcctc	2580
ccggaacatg	cctcaagggc	ggtgaaaaca	gtggaggtgt	tggaggggca	tcagcacatc	2640
aaaacgtgcg	ggagacagtg	ccggagaaaa	gggctgcact	caatatcaaa	ctccaagaac	2700
gcttccaag	tgcgtccctt	ccngaanaag	ttaacg			2736

(2) INFORMATION FOR SEQ ID NO:979

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 830 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...830

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:979

gtgggtcgatg	ataacaaaca	tgtactgacg	gctttgaaat	tgctcctgag	gggagtttgc	60
agaccgtgac	gctcctacct	tcccccaaga	cactgcttcc	acgatcgtag	aggtgcatcc	120
ggatgtactc	ctgctggata	tgaattttct	accggcatca	atacgggtaa	tgaaggatta	180
tattggcttg	atcaggccgt	agccgtttcc	ctgacctccc	tgtggtactc	tttaccgctt	240
atgcgacatt	cgtctggcag	tggaaagcct	gaagcgtgga	gcaagcgatt	tcgtgtcaag	300
ccgtggaaca	acaccgagct	gttggagtcg	cttcgcattg	cgagaataag	gccgcaagca	360
ctcaagtgc	ggctacacct	aaagaaggcg	atcgggtattt	ctcagcaaaa	gcaaggccat	420
gtgtgaggtg	ttggagctgg	cggtcgtatc	ggcgatactg	cagcccatgt	cctcattacg	480
ggtgagaatg	taccggcaag	ggcgttttag	ccgagtatat	ccatgcccg	tctcctcgtg	540
ccggcagccg	atgctgactg	tggatatggg	agctttgagc	gagacgcttt	cgagagcgaa	600
ctgttcggcc	atgtgaaag	agcctttacc	gatgccaaag	cgatcgcgcc	ggcaagttcg	660
agacggcgtc	cgggcgacag	atcttctgga	cgagattggc	aatctgagcc	ttgccttgca	720
agccaagtgt	ttggcgtact	acagcaaaaa	gtggtgacct	gtgtgggcag	caatacaccg	780
atcctgtgga	tgttcgtgtc	atctctgcca	cgaatagcga	tttgccttc		830

(2) INFORMATION FOR SEQ ID NO:980

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2389 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2389

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:980

acggatcgta	agaaaccaga	tttgaaagaa	ttgatcatca	accgacttgt	accgaaacct	60
cttcgtccgt	tatgcgccac	atatctcggt	tgacaaaaga	atcattcggt	tatccggatg	120
gaccaccgct	gaaaaagccc	ttatcgctct	tttctcttct	tcgtcaatgc	tctctttcaa	180
tacaaatcaa	tgagttaata	ccgttggtta	atcaatgtcc	ggcatatctc	accccaagga	240
gattgcgaag	aaagaggaaa	aaagcagcag	atctgtaagc	cgggttctgt	actccggcca	300
cacgtagcca	gagcgtctgt	catttatctt	ggcgtgcgt	cacgcattgc	tccagcgatc	360
taccccccg	catcgggcga	gccaccctac	atcccggtta	tacatgatct	tacaacccat	420
cagacgtacg	gcattgcagc	taccgctgca	tccggtaggc	tcttacccca	ccttctcacc	480
cttaccctcc	cgtagtccgt	accgaagcac	agacaactca	tggaaaatgg	cggctattcc	540
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tctgtacaag	tgtaggtgg	atgtcgctcg	ttcccgagg	catatcgta	ggaagtgtc	1140
caactctccc	caattggcat	cgcggataag	ctgtgtagg	cattgcctgc	catacttccg	1200
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atccaaaagc	tctatatccg	tccgaaggaa	agctcgttgg	acatcccttc	ttgaagagac	2280
tctttggcac	cggccacat	gcgctcctt	tgatgtcgat	gccgataaaa	tttttctccg	2340
gaaaccgttt	gccagaacct	accgtatatt	cttcttctt	ccggaaccc		2389

(2) INFORMATION FOR SEQ ID NO:981

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2698 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2698

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:981

cttatgggaa	tccctccgaa	tcatagtttcc	cgaggagaaaa	agaacattat	cattgcccggg	60
gattaataacc	tgcgattttat	agcgagtctg	ccggcatttca	atcttccctct	ttaggatctt	120
acatcacatg	tcacgttgca	gaaattttgc	atgtgtggtt	tctaaaaacg	tggcgcgtaa	180
actttttcat	tttgcccgag	aagtaaaaaa	atctcgagcc	aaaacgaaaa	aaatcatgcg	240
ccacttattc	cataaaatcg	aaccgaaatc	aaagtgtttt	aggctcgtac	tccgagacag	300
tagttcacaa	gcatacagga	gaatagcatt	gatgtggaat	caagtatctc	aatattgaga	360
gcgttcgac	ggtcaaaaga	aacactctat	ctccaaaaat	caaattttaca	tccgttttatt	420
gctgctcctt	ttgcaaagtg	gtttgacaaa	tcgatgtgtg	agcaaattgc	ttagatgaaa	480
aaaaggataa	aggattagtc	tggttgcatt	tttttattta	gttttgtggc	tgtccgtata	540
tagagcagtt	gtggaagttt	cgtgacttgt	gtctaaggcc	ggtagcgggt	tttgagactt	600
cccttggggt	agggtaaaaa	cggagaagaa	aagaaaaaac	ataacagtaa	taattttaag	660
tttaacgcaa	aagaaaagtc	tatgaaagaa	tgacgctatt	cttcctttgc	ttgctgacga	720
gcattgggtg	ggctaggccc	agaatagaac	cgtgaagggt	acagttatct	cctccgagga	780
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ccgacttgga	tggcaacttc	acgcttagcg	tgcctgccaa	tgcaaaatgt	tgagagtgtc	900
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tccggactct	aaggttctgg	gcaggtagtt	gtattggggt	acggtagcgg	acagaaactc	1020
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ggttctattc	tgtcgggtgga	atgtttgaat	atataataaa	ttcattcaag	aaagtaattg	2580
gctcagtgat	cttcgacgaa	aatgagttat	ggtacaacgg	gtaactcgga	gattggtaat	2640
tacaacacca	agcactcgtt	actgtgaaca	attatactga	agatgctggg	taccggaa	2698

(2) INFORMATION FOR SEQ ID NO:982

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 943 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...943

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:982

aattggagaa	tagtgctgca	gcagcagtg	agcctttacg	gacagatcca	tggaagggca	60
gattcaatta	caaaagacca	agcgcgaatt	caaaggaccc	tgactttggt	ggttttccct	120
tttgtcaaga	agtctcgaaa	aagtcccaag	cgactgccac	ggaaatagga	gaatggttgc	180
ttgcaaacga	gtcggcgat	ctgccatcga	agtggtaaag	ggctttctca	atctgaccat	240
tgctcgaggg	tatggttgga	gctgctgaac	gagatccgag	cgatatcaa	cttcgacata	300
aggtecgctac	agaggatagc	ccgctggtaa	tggtggagta	ttctctccga	ataccaataa	360
gccgttacac	cttggaacacg	tacgtaacaa	ccattggggt	atagtctttc	cgagatcatg	420
aaagccaatg	gctatcgtgt	gtgaagacta	atatcgtaaa	tgaccgaggc	attcatatct	480
gtaagtccat	ctcgcttggc	aaaagtgggg	agatgggtgtg	acgccggaga	aggccggtag	540
aaaggcgatc	atctgatcgg	agactttctat	gtccttttctg	ataagcacac	aaagccgaac	600
tcaattccct	tatggctgaa	ggtaagagca	aagaagagcc	gaagccgcaa	gcacctcat	660
ggctgaagct	cgtgagatgc	tacgatgtgg	gagycaggag	acgaaaaggt	cgtcgatctc	720
tggcgctacta	tgaatagtgg	gtatacgacg	gattcgatgc	cacatacaag	atgatgggtg	780
tagattcgac	aagatatact	atgaatccga	gacctatctc	gtcggcaagg	aagagtgtctg	840
aggggtttgg	aggaaggctt	tgtttgtaa	gcattccgat	ggttctgtat	gggcggatct	900
tgacaaagga	tggtctggat	gaaaaatgct	ttgcgtgccg	atg		943

(2) INFORMATION FOR SEQ ID NO:983

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2483 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...2483

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:983

tgagttgagc	ggagagaatc	acccgatcaa	actccgnacg	tgtctggtat	tatacccgat	60
cttccattcc	gtggatgccc	gtagccgccc	gcgcgtttgt	cagaaatgaa	tgggaagagg	120
agacgaggga	aacggagcga	gctttccccc	catattccat	gaagctgtgc	gaacccttgc	180
gaatggcttc	gtaagccctt	tgagtttgat	attgaacatc	tccgccccac	gaaacaaatt	240
gcgatggtga	aaccgagaga	caaagccgcc	ccgaagtctc	cagcgggaatt	ggtgcgagga	300
cttcggcttc	gaacgatttg	ctcttgggccg	gaacggtaag	aattagcagt	ccacaaggcg	360
agagctatcc	gccagagcaa	tctcatcctt	acattgtgct	ccacaaatcg	gatattcacg	420
ttccgaacga	tagggagcgc	atcagcttga	tataagagcg	ttccacatca	tcctcgaga	480
aaaaagctcc	ggtgtaacgg	acaccgaccg	cgtgagagcc	gatgcccgga	tataacgtcc	540
ctactcccat	agtaaacagt	gtaatcgcca	cgcgaaatcg	aatcgatagt	ggcagctcct	600
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ccgtgttgcg	catatgacga	gctatcgctt	ttctctcttc	atcgagtacg	atggcgacaa	840
gggagaaccc	tcgctgatcc	cgaccttgta	tgccgaagga	aggaattgcc	aagcgcaacg	900
ggaggaagga	gtggattctt	cacatccaaa	gcataattgcg	tatataataa	cggcttccgg	960
gctgaatcag	ataagtaatg	gagctttctt	gtacaagccg	gtgtctacca	cggcacgagc	1020
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agtcctgtaat	tgggttgctg	gagggatagt	cccgaaatc	ttccggcaga	gcgatactgc	1260
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gacgagcagg	aggaagcaag	catgaggagc	aagcagccgg	caatgccgat	taataccgaa	1380
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acgccaaactg	cacaacgcct	gtatgagcag	atctccaatc	cgttctgcac	agaagcacc	1500
tgtgcttgag	cgcgatgcag	aagatcggtt	cctgcggatt	atagatcaga	tcataacaga	1560
gatgctctca	cctataccct	cgaacggaat	agacggacat	tggctctatat	gtggataata	1620
cccaccggag	tggcattgac	gatcagcttg	tgcggttcga	taatctcggc	gtcagatccg	1680
aatatgcata	cacaccggga	gccgaaggcg	tgcgatgacc	tgcgatgta	ctattcccat	1740
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agaattggc	agacagcgaa	tgagccagtg	gatagccgat	cagaccgtac	tttttctttc	2160
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cgacagagag	catcaggtcc	gccagttctt	cccgtagaggc	atggctgcta	tcgattcggg	2280
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gaagcataga	agtgtagccc	tgcttccagg	ggaaactcac	cggacgggaa	agctccagta	2400
tatcagagga	gcaccctcat	tgagcacacg	atacatttcc	tccagaccga	cttgatattc	2460
tgaaagtgtg	gcaagccgaa	agc				2483

(2) INFORMATION FOR SEQ ID NO:984

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 187 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...187

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:984

ggcgatgatt	tgtgccggac	cggttttgaa	aatcttttagc	actctgtcca	ctcatccgggt	60
gtcgggtgtga	gttcgcttgc	accgatgggtg	cgggcatctt	gacttcgtcg	atcatgaaat	120
tcagcaactt	ggcttgctga	aatcgctgat	tctactttgt	tcgatcatgt	aagttttgac	180
ctataga						187

(2) INFORMATION FOR SEQ ID NO:985

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2775 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
(B) LOCATION 1...2775

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:985

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ggtcatactc cagtttcgac cgctgcggaa accatataag gttttgaagt caggttggtc      60
cagtaaaagc agaattagag gcaatgcccc atacctcagt agaataccat tgctgaagcc      120
ggctcccaca ctggtcagta cgacgagatg aagatacccc aaaatacacc gaaggctgtg      180
gccagactgc gtctgcattg ctgtagatcg tatgccagat ctctatccaa cgatctctat      240
cgaaaatctc atagtctcct ttctcctcct tcgttttagtt tctcatcgcc tccacgcggg      300
gattcgtacg gctttgcggg cgggttggtg tcttgctatg gcacgcttac taccatgact      360
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ttccttctac ctgtctgctc cgacaccggt ggtctgtacc caatgcgata cgaactccat      480
cagaccaacg cggccaccaaa gcctatcagt ccggaaaaca gtgtgaccac taccgcctcg      540
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gcgctgtctt tccattgacg tcacttgcat gatattgcca ctccgataat tccgatgaca      660
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cttggaagg ccagttggcg attgagtagt actttgagtc tctccacgtt ctctcagttc      840
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caccatcatg aaacctactt tgatgccgag cccttgattg ggagaaggca ggagtcgagc ttctcgatca 2520
gttaactgtg ttaagtctgc atttctttcg ggagaaagca tttaaagatg aagtagaaca 2580
ggcgaagtgc ttgcctcgg cgtacgtaag ttcgaaaatc tttaaagatg aagtagaaca 2640
ctaccgcagg taccaaacag attctaagtt cataatcggt tctttttagt ttgagggtta 2700
ttacttggtt tgtttgcttc tttgacggat agtgctcgaa aaggttacac ctctgatcgt 2760
tggttacccct cttcaagaga ggtcggctac cgtcgatcct gcttgttgct ttttctggtt 2775
ctcttgcttt ctttc

```

(2) INFORMATION FOR SEQ ID NO:986

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2101 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2101

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:986

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aggaaataga agttcccttc atagcagaga gcccttattc gttaatgact cacaattgga      60
gggtaaagaa acctattttg gctcttctga tggttctaaa gattgcatta tacattgtgc      120
ggtttttctg attttaatag atatgtctcg ggtctaattc ttctagtctg agtcgtgtat      180
tcttcgagat taaagggggg aatatcaacc cgttcaattg cagcatatta gaggtgtaat      240
agcagcatta tattgaatga atatggctgg gatgatgaac ttggaaaatt ggacaagggg      300
tatacagtac atcaagacat gataacaaaa cggagcgttt tggaaaaaat atctttggat      360
ggccttgtat aaaacagatg caatactttc tgttattgtt cgattttgaa aggtagatat      420
tatggttatg ctatacccaa aaagaggata tggcatcgaa cccttatcca tggttgacag      480
acgaatattc acaatagatc catcactatt gggtagacaa ggaaaagatt ttatttcttt      540
gaaatcaatc tattagagga agttaataat gttgataatg agcaatgggt gatagagggt      600
atcaattacc agctccgcgg ttgctcttga aagacaagat aatgcagact ggggtgctgct      660
aacgagctat gatgggcata aaacagagca gcagatggta ccatcaaaga tctcttcttg      720
tataccaatg gtgcttcatt aagaaagaag agttgagtg cttacaagaa tgggctaaag      780
aacaaacttc tatgggcgat ggatgcctga atgcctaaat ggaagcacgg atttttgtgg      840
aatgaatacc ctggggcaga gacctacatt cgacaacgag ataatgggaa aagaatcata      900
gctacgaagg tgtaggtttt aaattgcagt ttcatatgag tctcaattgc aggaaaatag      960
cttggttttg atgattctaa gaatgggtgc ccgaagtatg catgcccac catcacatta     1020
tggaagacta agttatata cagccgaaag aggtgtagta agagatatat ccaccaataa     1080
atcgtttcgg taaatattcg ggttgaagct taaaggggtt agctatggaa aagactattt     1140
gtcagaatat ctttcacatt ctagatgtgt tcttggttatt attcttttag agaaaaatta     1200
atgagagcaa aaaatcatca aggttaggaa agatttata cttatcaggt tcatatgcatt     1260
atgaagatag atctttcttg caatagagcc tatgcacatc tccaacgtct cgtgagattt     1320
cttttgagag gtcaggaatt gcttactgag aagctctttg gtgcataatc atttttttgt     1380
ccatcgctca ttcacgactt cggagtgatt gatccccctt tggggcaagg gtctttgtgg     1440
tacaaatggc aatttgtggt acaaagacac ccttgccagt gtcaagaagg gatgcttcat     1500
tgccctctac gatcactctt ttcttttagcg ctgagcaaaa cttaagctcg agacctcgat     1560
taattaattc tcgagatctc gaggtctcga ggtctcgaca ttggcctctt ctaattggga     1620
gctgagagtg ttgatttata gacgcagtc cgccttggtc ggagtgggat cttcttctt     1680
tgctccgcta gagtgagata ctggttgatg tcttttaggg agcgtagcac gctcgcatat     1740
ccttgacggg tagcccagcg tcgagagttg ttctgttgct cgatcccccg cttcatcatt     1800
atcaagaagg ctccaatcat agggtaggga tgaagtgtgg gcatgagttt cggaagtagg     1860
gtagcgaatt aagtatgatg ctttcagctt gccctcggg gtgaagtttc cccaagagag     1920
aaagtccatg aagccctcga agagcaggag cttgtgacta cagtcctttt gattgtcggt     1980
atggccttgg gtgcaaaaca gcccttaaat agggattgag tagctcccat ccttcagcat     2040
cattggggaa gccaggggaa agaaacactt cctagagact ttgtaataga cttccgataa     2100
g                                                                                   2101

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(2) INFORMATION FOR SEQ ID NO:987

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 793 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...793

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:987

cgacaaagaa	ttaagaaggc	gattgactac	aaagttgatt	gccttttttt	tgatgactgg	60
ctcaggcgctc	aaatcacgaa	agcaaaagag	gctgtcccat	agagtcaggg	ggcagcctct	120
tcaggatcag	tatatctgtt	gtctctgtta	ttcgggacga	gagcaacggc	tatagaatgt	180
gagttcttcc	ggacggaagc	gcgcacgtag	ctgtcgatct	tctctgctc	agcctgaccg	240
taacgagata	tacctctgcc	gactgacgga	atgaatcgtc	gtcattggca	gccacatcag	300
cagatggccg	aagactgcat	gagcagtcac	ctctacaagc	cgagtgcctt	gaaatcgagc	360
agctcctggt	ctttctgttc	tgttacgaat	gcatacgtgc	ttcggcacgg	tcggtcatac	420
gagccagagc	ctctttcatc	gttgcaactc	tggttaact	tctgtctgct	ggtactcttc	480
acggatacga	cgatataagt	gcctgtcggt	atatggcgaa	tggtgctac	gacctgcaat	540
gtgtggtacc	ttcgtagatg	tttgtgatac	gtacatcgcg	gtagagactt	cgcaggtgta	600
gtccttcatg	aagccgctac	caccgtggat	ctgaacaagt	catagacatt	ctgattggca	660
aactcggagg	tcattctctt	gccccatggg	tataggcatc	tgccagacgg	ctgaaatgct	720
tcattttccg	cagctcttcg	gaagtcaatt	tgcgctcggt	gctgatatcc	tccagcactt	780
tgtaatatcg	aca					793

(2) INFORMATION FOR SEQ ID NO:988

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1150 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...1150

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:988

agatgcagcg	gtttttttaag	actgctccgg	gcgaatatgc	tgagggagac	ttttcctcgg	60
aatatccggt	cccacatttc	gcgcttatga	gaagacacta	ggccttgagg	ggtggaaatc	120
ctcgctcttt	tgctgcaaca	gccttatagc	aggtgcggca	tctcgcaact	atcggcattg	180
ccgaactata	cagacggctc	ggtcggaagc	agtacgggag	gggctattag	cctcctatct	240
gagcctacga	ctatgatcaa	taactgggat	ttggttgatg	tatccgcacc	cgatagtag	300
gcgaatatgt	ccatgctcat	cccatcgagg	gcaatgcctt	gctgatagat	tgcccgattc	360
atgcttggtg	tggaacaac	gaatagcgat	ggagccaatt	ggcgactgat	ccgatacggg	420
gagtaggaag	ctaccattcg	cttgccgagc	gattgctcca	ccacccacac	gatctcattc	480
ataaagcagt	ggctggatgc	tgctgagat	gggtaaaaag	caagaacggc	tcctgcttgt	540
ttccttgaca	aacatgccgc	cactatgcca	cggacagctc	tccgctatcc	atggaaaagc	600
tcccgctccg	tctgcgctct	tactacctga	ccaaaggaaa	taatctacct	ataattttta	660
tatatcattt	ataggcggag	ctgcgaaaaa	gaataagccg	agcaaaaata	cagacggaat	720
aaatcaaaaa	taaaagcaaa	tattgagtca	atatctgcct	ttttctcttt	ttccagtcgg	780
ggtgctggat	tcgaaccagc	gaccacacgc	ccccagacg	cgtactctaa	ccggctgagc	840
tacacccgcg	ttgcttattg	cggtgcaaag	gtagtttttt	ttttaccct	ccaagagttt	900
cgcgataaaa	atcgaaacat	tcgtgcaaca	tttctccggt	atctcacatg	gttctgccc	960
taagcctatc	cctttaagt	aataagcctg	atthtgcctc	ccagattctt	cttgtctttc	1020
atgcaaaaaa	cgtagagac	ggatattgct	tgaggtgaa	aaagaagggt	gagtagtatc	1080
tttgaccatt	gcgaccagcg	agtagaygat	ctctcgaggg	aaaccattgc	caccaccgaa	1140
taatagagtt						1150

(2) INFORMATION FOR SEQ ID NO:989

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 548 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...548

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:989

ggcgaaatag	atgcggagct	tatgcgcgat	cttgagatga	agtttgctgc	agtaacttgt	60
ggcagaagaa	taggattggg	taccgtatcg	gcagaactaa	gctcggataa	tttcccga	120
cggtttgacc	gaagagcgga	ttgcgagtcg	gagtgaattg	tcccccatca	gtagaatacc	180
ggcaaaagca	ctgtcttctt	ggcaacacct	gtcatttcga	tcgtgggcac	tacccggtcc	240
acacctcgac	agagggtata	gcttcaagca	tcccgaccgg	agcattgaaa	tgattgaagt	300
tccggccacg	ggggcaatgc	atagatgtcc	cgtatagccg	tatccagact	gcggatattt	360
tgtttgaagc	caccagctat	cgacacggta	atagcatgac	catcaagctg	agcatgatac	420
cgatcacaga	gagacgaaca	aaggggctat	tcctttccct	tcctttccct	cgcccctaaa	480
gagccgtccg	ccaaaaagaa	atcgatcttc	atcggccctc	taccctattc	ttctatcagc	540
ggagaaaa						548

(2) INFORMATION FOR SEQ ID NO:990

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 397 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...397

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:990

cataagagca	aaaacgattc	gtcaattttc	ctcaacccaa	acatctcctc	ggggaacgga	60
ttcggggatc	aaaaaaagaa	aaccatggca	tctcgactac	ttcctgccac	aagagaaaaa	120
tcaaggggga	gccgcaaatt	aaatactgcg	actccccctt	acttggtttg	agagaaatat	180
cagatactga	aagctatgta	tggaagaaca	acagtcctat	agtcgcaata	gcatcatctt	240
cttcaattat	tagttgacta	caactttcct	tacattgcta	ctcgtggcag	gacttgcaga	300
ctgacaacgt	agactccatc	gaccaatggt	tccgtcatag	actacttccg	ggttttacgt	360
ccaatcgaat	cagaagtttt	ccgtcagttg	gaaaaca			397

(2) INFORMATION FOR SEQ ID NO:991

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1121 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...1121

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:991

```

gtatccaata cgctcatttc catgattgta atcttcctgc tactcaaaac gccggtatga      60
aagacgggtc ggccaatctg atcgggttata tagcagggat atcaacagct tcatttggaa      120
tcgtaaatgg acattccgga gccggactct tggaggcaaa cattcgtacc attcatcctg      180
atgttcgtaa tatgcttgca ctccaatacg gacttttgat gtggctcaac gaatactcca      240
cctccacgac aagtattaca accacctgat aggaatggcc tttttcacca ttataatttc      300
cttgccaata agttcattac attcggcaaa gaacggtagt gcgtatttgg acaatagaga      360
aaactcttta tctttgcagc gcaataaacc aagggttatt agctcatctg gctagagcgc      420
gacactggca gtgtcgaggt gccggttcga gtccgctata ctccacccaa aaagaagggtg      480
caaacgggca tcgatgcagt ttgcaccttt ttcttttgtc cccatcggat gcttttcctc      540
cgtccctatc tcgacaatct tccaaaagaa aagccgaaag accaataacc ctatcagcat      600
aattacgaaa gacagaagtg attgttttag aggcactaga aggaaattgt atcgtttccc      660
caactccctt ttggacattg acacagggct gaaaaccatg gccaaaccaa agtatatagt      720
ttggctttat caaagatata gtttggttcg accaaagtat atagttagt tcaaccaaac      780
tataagttta gtttcaccaa agtatatagt ttggtttgac cgaactatat agttgtttca      840
ggagcatttt gagctttctt tctcaagat ataatgcact ataatcaacc tcttatttct      900
tctttcctgt aggatgtcat ttttgactgc gcatacactt ttgccttccg ccatcttccc      960
gcaaagggaa tcgtaccgga agcaatttta cccggaaact ctataaactc acaatgtgta      1020
ctataatctg ggtagatttc ccgataggca tgatccaata gaatgggtta acattccctt      1080
tcgttggggg tttcttctcc ccaaatacct gtcaaaaacg a

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(2) INFORMATION FOR SEQ ID NO:992

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 772 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...772

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:992

```

gaatttgtgg gcctaagaac cgcaatcatt ttcataagaa atacctccgc ctttattaga      60
ccaggaaaag atcgaaatga ccattcctga aaagccccaa gtaagaacca gaagtatcga      120
acgaaggaaa caatcaaattg atatcattcc caaaagggtt ttcaaaccct cgaaagagga      180
aataatataa tcggtgaggg gttggaaagg tattcctttc tgaccatcag gacggttgta      240

```

aatccagttc	ccgtcctgct	tttattttcg	aagcgggac	atcgccctgcc	acatggcctt	300
tcgggtctatt	aagttcgggt	ctctatgctg	actgtgataa	agatatccgg	acaaaataga	360
gttctatcct	cctgtagaat	gtataaagga	ttggagaacg	actaggctgc	tttgaggaa	420
tcttttattt	acggaaacaa	atttctttcg	gacaactttt	gcttcgcatt	aaagaattac	480
agcagcgatt	cgaagtatcg	gcacaaacggg	caagtagaaa	gtttttgcaa	aataattctat	540
tcctaagggc	gtaatcggtt	tccatattat	ctctcaaaag	gtctctcagc	cctcgaaaga	600
ggaaataata	taatcgggtg	aggagttgga	aaggtatcct	ttctgaccat	caggacngtt	660
gtaaatccca	attcccgctc	tgctttattt	cggaagccgg	gatcatcgcc	taccacatac	720
gtctttcggg	cttttggtcc	aattccctgc	ttaattcacg	gaagatatcc	ag	772

(2) INFORMATION FOR SEQ ID NO:993

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 781 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...781

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:993

ttttaatcat	gaaatctgca	agttttcttgc	cataaagata	agaaaacttc	agattcatca	60
taggttttctg	caaactaatt	tgctcaatat	cagagagtaa	aggattctta	agggacgact	120
acatagtctt	acacagctat	ttctcgaatt	gggaagttcg	agtcctgtagc	ctttcttcac	180
atcggcacct	ttcagggaat	accgaggata	aaggcgagga	taccgaacga	agcaaaaacc	240
agcatgccaa	agtatagttc	ttcggttcgc	cggctgcaac	acccttattc	gtgggtcgag	300
gatggctccg	atcacgatgg	gaacaacccat	caagccgata	ttcgaataaa	gaaaatggcc	360
gaataagccg	agccaagtac	tttggggctcg	atatcttggg	taccgacggc	cagagagcag	420
caggtacca	agagaaaagaa	aaccaggtac	gacgatggct	gcaatggcta	tggcaagaga	480
agaagtgggtg	cgctctcaaa	gggaaaaatg	gcgaatgtca	ggtggcagat	aaacatcaga	540
ctgctccgac	aataagcatg	gtggctcctt	tcccgaacttt	atccaagatg	cgccgaggaa	600
aggcgtcagc	accatggctc	ccaaggggaa	catactgaga	tacgggcagc	tccttcggcc	660
gtcagaccga	tatttggact	gaagcacttc	ggtggcaaaa	cttcttgaaa	ggggaaaatg	720
gcttgaatag	taaagacgca	caggagggca	acattccaga	catgctattg	ccgaacctg	780
t						781

(2) INFORMATION FOR SEQ ID NO:994

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2249 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2249

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:994

cctctgcttc	ccgtacagcc	gtatgtgcc	aaagcgagaa	gcctgtaatt	cacctgcagc	60
atagacattg	ggcagggaag	tttgcattct	ctcatttagct	ttacaccttt	gccggcaagc	120
accaatccga	gcgactcgaa	tccttgcgca	cggggcgacg	tcccacactc	atcaggatac	180
gttctccttc	gatctcttgc	tttctccttc	gtattctacc	gtaacagctc	cgttgcgaac	240
cgatgtactt	tgtgcccgag	gtagaatttg	attccttctt	tttcatagtg	agcggtagca	300
tagctgcatg	ttcgggatcg	ataccgttga	gtatttccgg	cagatctcca	ccacgtgcac	360
ttgcgtaccg	ataccgttga	agaaagaagc	gactccattc	cgatcactcc	accaccgatg	420
atgacgagag	aggtcggaat	cctttgttct	gtagagcttc	acggtttgtc	caatactctg	480
tctgtctcac	ccgggggatgg	gtggaataaa	cgtctccgaa	ccggtacata	gtagcaggtg	540
gcagctttgt	actgtgcttc	gcccgcatga	atgccgatga	tgccgtctca	tgcacatccg	600
ttacggtagc	ttctgccgtc	accatctcta	ctccggctct	gtcaggcggtg	aacggatgcc	660
tgcagtcagc	ttgcgaatga	ttttactttt	ctggcaatca	ccttgccgag	gtcaagtcca	720
tcggccgttc	cacttctgca	tatttagatg	ccgtagcaat	ttgatgtagc	actttggccg	780
agtaagtagc	gtcttggtcg	gtatacatcc	ttcgttgagg	catacaccac	cgaagcattc	840
ttctcaatta	ggagggtttt	caggccacct	ttggcagcac	gtcggcagcc	gtataaccgg	900
ccggccctcc	accgatgata	gctaagtcgt	acgcatagtt	ttatagattg	ttgcgttcga	960
tatccttaaa	gtagttgtac	tgcccaactt	cagctccaca	caggcagctt	cgtcacagac	1020
aatgatactt	gacgatggag	ctgcaaggct	gtgatcgctc	acatttggtc	gactgcactt	1080
ccacagcttc	acgaagagca	cgggcttttag	tatgtccggt	cacgaggtca	ttacttcccg	1140
tgcattccata	attgttccta	ctcctacggt	gagagccggt	tcggaaacctg	attcgtatcg	1200
ttgtcgaaaa	agcgactggt	agccatacgg	tatctgtagt	tagcgtcttg	atacgggtgc	1260
gagaggtaag	agaaaccccg	gctcattgaa	tgcgatatgt	ccgtcaggtc	ctatcccggc	1320
gataaaaagg	ctatgcctcc	ggcagcttca	atagctctct	cgtatgcac	gcctcgcccg	1380
tcaggtcagg	agcattgcca	ttgagaatgt	ggatgttctg	agcaggatgt	cgatatggtc	1440
gaacaaatgc	cgatgcatga	atgaatgata	ctctccggat	gctctatagc	aaggccctacg	1500
tattcatcca	tgttgaagg	attacgtggc	ggaaagatat	gcattcctct	ttgcatgctt	1560
tcactaacct	ctgtacattc	ctatcggcga	agaacctgtc	ggtagaccga	gtacaaagg	1620
ttttcggccg	taggagctgc	tttatggata	cgtcgcgatga	cgtagtggct	gccattttgg	1680
agagctttgt	gtaatccggc	tctatgatta	atctcttgta	agattggggg	tagtccagta	1740
gtggatatga	tatattactg	acgacggctt	tcagacgttc	ggctatttta	ttgccaaagct	1800
cccaaccctt	ctctacaggt	catccgtggg	agacatcttt	tgttccaaag	gttcgcctac	1860
cattcccaac	ccatttcttc	tgcaaaagga	actatctttt	tcacagcctg	acggccccatg	1920
taaaggagcg	gaacacgctc	agatagcgat	cttttacctc	cgaagacgga	tcatttccat	1980
gatattcttg	atcgggtgaa	agatctcatg	ctgtatgtgg	ggctaccgat	tatcactgcc	2040
ttgtacttaa	agatgtctcg	caggatgtta	gatgccggac	tgaatgctac	attgtggcat	2100
acaacgtgcg	gatgcctnct	gcagcaatgc	cctgtgcgat	cgtatctgcc	aataactnctg	2160
attgccgtac	atagtccgt	agagaatcac	tgcaccttct	tcggctcgta	tcggctcatc	2220
cgatcgtaga	ggtcgaaggc	ttcagagaa				2249

(2) INFORMATION FOR SEQ ID NO:995

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 714 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...714

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:995

acgttttttag	gagcatgaaa	caaaaaattt	cacgaacgta	aatgggacga	tcgaagtttt	60
acttcggtct	cgtttttcat	ctctattcgc	ctatgaaatc	ctaaggctct	cttttagaca	120
aaaaatcttt	ggccaaaatc	cttctatggg	agcatcgagg	aaatgaagtt	gcagtcctcg	180
gtcatatacc	taatgaatag	gggagtggat	cggatcgggt	tgctccctct	cgaagagagg	240
tttcttcccg	tttcgggtctg	ccttatgaga	attattcgaa	gcagtcggtg	gcggtttaag	300
gtgtttcata	tacctttgcg	ctgcaatgca	atcataaaga	ctgtttctcc	atgttgga	360
agctcattat	tctggatttc	ggttctcaaa	cccacagctc	atcgccagac	gaattcgcca	420
gctgaacacc	tactgagagg	ttatccctac	aacaaactgc	cggaagacct	ctaaggagtg	480
cgaggcatca	cctgtcgggg	agcccttatt	ccgtgtatga	cagcaaggct	ttcgtatcga	540
ctgagccgaa	ttacggggcca	agttgcctct	ctttgggtat	ctgttacgtg	cacagagcct	600
tgtccatcaa	gcccgggtgca	aagtagaagc	cgtgcgaagt	cgcgaatacg	ggcgaacaca	660
tctgaccctc	ggcagcctga	tgatgcctgc	tgacaggcct	gcaatccggc	ctac	714

(2) INFORMATION FOR SEQ ID NO:996

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...690

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:996

gccgaaggat	tcgacgggct	gatectccct	goggaaaatg	cacgtgaaga	gccgtcgtga	60
acaacctcaa	tgtctatggc	gtgaagcata	ttgcagaatg	atcagccatt	tcaatggggg	120
cgatcagcta	cagcccaacta	tagtcgaacg	cgcagggaat	ttttcgacca	tcagcagcag	180
gtgtctttcg	acttttggag	gtgaaggggc	aggagaaggt	caagcgcgcc	ctcgaagtgg	240
cggccccaggc	ggacacaatc	tgatcatggt	cgggagtcct	ggcagtggga	aatcatgatg	300
gctaagcgaa	tgccccgaat	tcttctctcg	tttacactta	gcgatcgctc	gaaacgacca	360
agatatactc	cgtggccggg	aagctgggag	tcattcgatg	ctcctgacct	aacgcccttt	420
ccgctcgcgc	caccattcca	ttcttcgcgc	gcactcgtgg	gtggcggcac	ttatccacag	480
cccggagaga	caagtctggc	gcacaatggc	gtgctctttt	tggacgagct	ggccgagtta	540
accgctccgt	tctcgaggtg	atgcggcagc	ctttggaaga	tcggcagaca	ccgttttcga	600
gagccagaat	gacggtggat	tatcctgcgc	gattcatctc	gtggctgcca	ttgaattcct	660
gtccttgccg	ctactacaac	cattcccacg				690

(2) INFORMATION FOR SEQ ID NO:997

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 524 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...524

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:997

ggactatg	cgcacgc	atgcactg	caatgtattg	gataccatag	accactggca	60
aaatcgcaca	aggtgatcac	agtggtagga	gcaggaggaa	tcgggacaaa	ggcaaacgtc	120
cgatcatggc	aaaggaggca	gcccgc	caaagcgtttg	atcctgacat	cggacaatcc	180
gcgtgatgaa	gagcctaaga	aataatccaa	gaaatggcta	tcggactttc	gacagaagac	240
aggaaaaaac	actgctcatt	actgatcggg	cggaagccat	ccgcacggcc	tgcagctggc	300
agagaaggga	gactttgttt	tgatagccgg	caaaggtc	gaacttatca	ggaaatcaga	360
ggtgtcaagc	accattttga	tgatcgcgaa	gtgtctgcga	tgccatgtcg	aaagatcgta	420
tcgttcaata	aactctatag	acccatgttg	tactatctgt	ttgattatct	cgaaaagcta	480
cagctccccg	agcgcgactg	gtccatacgt	gtcatttcgg	tcgg		524

(2) INFORMATION FOR SEQ ID NO:998

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 539 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: FORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...539

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:998

gcaccggcga	cgatgacgc	cgagcaggct	ccgatggatt	ggatgatcaa	ttctgcccc	60
gcataatttcg	gcgtcccgaa	atggtgccga	tacctacgcc	aggatggcaa	tgggaatggc	120
ggcttcgaat	acttgcccga	ccttcagccc	agataagctg	cggcagcaga	gaaaataact	180
gtcatcacca	aaccacag	acagaatagg	aggtaatctc	gcgcggcgta	ctgcgggcag	240
gcaccccggt	tcgtactctt	cgcccggcct	cagctcccga	tatgcatttt	cgggagcttg	300
ctcgttgtct	gtttgttttc	catataatat	atgtgtttga	ttgatcgttt	tttgacccgc	360
cctccgatcg	caataagagg	gcggagaatc	gtctgaaaca	aagcgctcaa	atatatacaa	420
cttcgttgaa	aaccggctct	tcgatcggac	aggaagcccg	atcattcccg	gcagtataatc	480
cgtgcgatgc	cttcggagtc	gatagactac	agaccgcccgc	tttcgcccgc	gccttgctc	539

(2) INFORMATION FOR SEQ ID NO:999

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 626 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:999

cagtgtttga	attgactctg	atatgccgaa	aaatacgaaa	aaagtcgaaa	gaatcaatat	60
cctccgacaa	tcaacgtgaa	tacaacaatc	aaaagtaaac	agactcttct	ttatctctaa	120
tccctgagat	ccagaaagaa	cgcttgatg	gcaggtcttc	tgacttattc	aaggcttcgc	180
tgccttccca	tacgatctgt	atagtggctt	tctcgtggca	aaacccttac	atctgaactt	240
acagcgaggg	tacagtccca	gaatttcact	gggttccctt	ttcattctac	actcatgaac	300
cggtgtagaa	aaccattgac	acggcaagaa	tattcattat	atcatactag	tgcgaaaaat	360
tgaagaaaaa	aatatggatt	tggttgagga	tactttcagt	atacgtcatt	aaggctaata	420
gggtgtgaaa	tgccgctgat	atztatgtgt	tcggtgtgta	ataaaaaactg	aggctgtctc	480
gtcatgagac	gcctcagctt	catttattgg	taggaatatt	tgggatattc	cgctgcagta	540
ttactacaat	ccgattccaa	gcgttctctt	catagatttg	ctctgatggc	ccttccttca	600
atggtatgcg	atccgcagaa	caccat				626

(2) INFORMATION FOR SEQ ID NO:1000

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 967 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...967

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1000

ggcttatgct	catttatagt	atagtgcatt	caactctctg	aacaaaagga	ttgaaatagg	60
aatcaggagt	acttttgaca	gataagccca	agtatgcatt	ggatgatcaa	gtctcgatca	120
acaataaatc	agtgtaaagc	tgctgtcgga	ttcagcaact	cggccgcaat	ctcacggagc	180
cgatcgaggg	taatggatcg	atacgatgga	aaatatccga	aaggggatcg	tatttgccat	240
agagggcata	ctcttgccca	atgaaaggaa	tgtggactcc	ttattgtcag	ccgaacgatg	300
agctgtcctt	tgaactgtcg	cttggcagat	tccagttcta	tcgagaaaga	gggtgttcga	360
tcaaatagcg	caactctttt	ctgacaagct	cctggctgct	tccgcataat	ggggagcgca	420
gccgaggtag	atattgaaga	ccccgtatcg	gaataggggc	tgtaattgct	ctctacgtta	480
tagacatagc	atgctcttca	cgcagtgcga	gattgagccg	ggagttcata	cccggccctc	540
gaggatatta	ttaagcagac	ttagcggaat	gcgtctgtcg	tctgtggagg	atacgccgga	600
ccgcccattg	ggatgtgatg	ctggtaggta	tcttctgctg	tctgatggta	cgcggcagaa	660
agccttctct	gaggggatgg	agaggatacc	atcgggtatta	cggtatggga	ccttctcggc	720
cggattaagg	ggccatcgga	caggtctgct	tctccggcca	ggaagaagat	catattgtcc	780
ggccgtagtg	gcgacggagg	aagttacgac	ctatttgctc	cgtgatgcgt	gatcagaagc	840
ctctgtgccg	agaatgttat	gtccgagagg	atgatgaccg	gaaaggatat	tctcgaattc	900
gtcgaatata	agttccgagg	gattggtctt	cataagaaat	cgattttctg	cgaataacaa	960
ccggttt						967

(2) INFORMATION FOR SEQ ID NO:1001

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1192 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...1192
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1001

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ccggacgctc cgaatagaga tacgtgcagg cggctgaaag aaatcttgtc tgcaggaagc      60
tgtagcaatc ctggaagaat tccggtttct cacctctctt cctacaatga catctatccc      120
gatgaaggcg tggggcaatg ccctgcgata tgctccactc gctcccgaag gagagccgta      180
tcgtaccgac ggcgcagagc ttgagcacat cgtcggatcc gctctgaagc ggcatatgga      240
aatgtgagca atacggtgtg ccgaggcaca gaagtcaata agttcgtcgg agagagattt      300
ggttcgatag aaccgattcg gtatcgctcg ataccctcca cttgtccaga gcacgcaaga      360
gatcgaggaa tgtctccccc gtactgcgct cgagtcacct atattgactc ccgtaagtac      420
gatctccttt cctccctctg cgctacggcc tcagcctgtc ggacgagaga ctctatcgac      480
ccgtttcggc gcgtccgcga gctttgggta tcgtgcagta agagcagtggt tagtcgcata      540
gtcctgcact ttgaggaaat ggcgtgtgctg gtcgtccgcc gaacagccgg ttgaaatttg      600
cgaatatcct ttgtgggggt cgtgagaata gtctgctggc aaagccctgt atcgggtctt      660
ggctgagaat acttacgagg tcgagctctc atcggctccc agtacgatgt ctactccgtc      720
tattcgagct atttctccgg tttgagctgg gcatagcagc cggtgacgat catcaacgca      780
ccggatgctc tttatgtaac ttgcggatgg cattgcggca tttcttatcg gccgctccgt      840
tacggagcat gtattgatca cgcatatctc ggctttttcg cctctcgac agggcgca      900
ccctgctcgg cgagagcttt tccgatggct gagtctctgc gaaattcagt ttgcagccaa      960
gagtcaggaa agccgctttt tgttttcaaa gatgaaagca tctgtcatac cgcgcaaat      1020
tactgctttt gagactgtgg gacagatatt tcaggggcaac tcacagggca atcgattga      1080
actgtcaaca cacttataaa cctaactaac gattgctaca ctgggtttca aacaagtacg      1140
aattaatggg acctttgcac aacaagcagg cncctttggt tattcttctt at      1192

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(2) INFORMATION FOR SEQ ID NO:1002

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 3756 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...3756

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1002

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ggcgccatt tagtcacgag cagtagacgc gaaaccaagt gatctaccct ggtcagggttg      60
aaggttaggt aacactaact ggaggaccga atcggtaacg ttgaaaagct ttcgaatgaa      120
ctgagggtag ggggtgaaag ctaatcaact tggagatagc tcgtactccc cgaaatgcat      180
ttaggtgcag cctgttgatg ttatcatgag gttagagcgc tgattggatg cgagggtttc      240
accgctatca agtccagata aactccgaat gcatgataat tgaccgatgg agtggggcat      300
gggtgctaag gtccatgtcc gagaggagaa gaatccggac cacggctaag gtcccgaat      360
aattgctaag ttgtaaaaac gaagtcaaga tgagagacag ctaggatgtt ggcttggaag      420

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cagccattca	tttaaagagt	ggtaacagct	cactagtcga	ggattttggc	atggataata	480
cacgggcata	gcaatttacc	gaagccgtgg	gatatagtaa	tatatcggtg	ggggagcatc	540
cagcgacgta	gaagggaaaa	gggcgacttt	ttctggagtt	tctggaaaagc	aaatgtaggt	600
ataagtaacg	ataaaagggg	cgagaacccc	cctcgccaaa	gaccaagggtt	tcctgatcaa	660
cgctaatacg	atcaggggtta	gtcgggccta	aggataagcc	gaatggcgat	tcctgatggaa	720
gaaccgggtta	atattcggtg	ctgatacaga	gagcgatgtg	gtgacggaga	agtgcacagtc	780
cggcgtctga	cggaataggc	ggttaaaggg	tgtagatgtt	gatcggggta	ggcaatccgc	840
cctgagagtc	gaacctgaca	gtacccggag	tacaagtacg	aaggataagg	acgtaaaccg	900
gctcccaaga	aaacccgcta	agcataattc	ttgttaccgg	taccgtaaac	cgacacaggt	960
ggttgggttg	agtataactaa	gcgctcgaga	gattcgcggt	taaggaaacta	ggcaaaatgg	1020
tctgttaact	cgggagaaaag	gacgcctgtc	tccggacagg	ccgcagaaac	caggcccagc	1080
gactgtttaa	caaaaacaca	aggctatgca	aaaaagcaat	ttgaggttat	agtctgacac	1140
ctgcccgggtg	ctggaagggtt	aagaggagga	gtcatctcaa	gagaagctct	gaattgaagc	1200
cccagtaaac	ggcgggcgta	actatacggg	cctaaggtag	cgaaattcct	tgtcgggtaa	1260
gttccgacct	gcacaatggt	gtaacgatct	gggcactgtc	tcaaccgcga	tctcgggtgaa	1320
atttagtatc	ggtgaagatg	ccgattaccc	gcaacgggac	gaaaagaccc	cggaaccttt	1380
actatagctt	tacattgtat	ttgggcatca	gatgtgtagg	aaggccggag	gcagagaagc	1440
gggtacgcca	gtattcggtg	agtcgatgtt	aaatacggcc	cttttgatgt	ttggatacta	1500
actcgcggcg	tgcgaggacg	tgtatgggtg	gtagtttgac	tggggtggtc	gcctccaaaa	1560
gcgtaacgag	gcttctaaag	gtaccctcag	gcccattggg	aaccggtcgc	agagtgtatg	1620
gcacaagggt	gcttgactgg	gagacaaaaca	agtcgcacag	gtaggaacta	gagcatagtg	1680
atccgggtgt	tccgcatgga	agggccatcg	ctcaaggata	aaaggtaactc	cggggataac	1740
aggctgatca	ctcccaagag	ctcaatcgac	ggagtgggtt	ggcacctcga	tgtcggctcg	1800
tcacatcctg	gggtggagaa	ggcccaagg	gttgggctgt	tgcgccatta	aagtggcacg	1860
cggctgggtt	cagaacgtcg	tgagacagtt	cggctctctat	ctgttggtgg	ccaggaaatt	1920
tgcgagggtc	tgacactagt	acgagaggac	cgtgttgga	gacccctggt	ttaccggttg	1980
taccgccagg	tgcaccgcgg	gtatccacgc	tggttaaggat	aagtgtctgaa	agcatctaag	2040
cacgaagccg	gcctcaagta	agatttccat	aaatagggtg	gttaaagact	atgaccttga	2100
taggctgagg	tgtatgattg	gtaacaatta	agccgagcag	tactaatagc	ccgaaatttt	2160
gtgcatcccg	aaggatgcgg	tataggttgg	tttgttgccg	caaagttgag	gaattatattg	2220
ttggcctttc	gatatgtcga	ttgccttttc	gaagattcag	gtggttataa	cgttggggat	2280
ccacctcttc	ccattccgaa	caggaagtta	agcccaacgg	tgcgatggt	actgcgtcac	2340
agtgggagag	tagacggccg	cgttttttta	gaagcgtgat	agagaggggg	ggataggatc	2400
tcacctctct	ccccggaaaa	aaagggtgaag	gagagagtc	cgaatccgag	ctctctctct	2460
ttttattttc	tctctctcca	aaaatcattt	tgtttttctt	ctattcctct	ttctctcttt	2520
ccttccttcc	tttctctccc	cttgctgccg	ttattcctct	aacagatcgt	acgccaacta	2580
tctcattggt	cggtaggacc	ataggtagcc	gcggacggat	ggatagccca	tgcgacgag	2640
cagccgatat	aattctccat	ctgtgcata	tgaactttgc	gaactgctcc	gaattatagt	2700
ctacgatgtc	tgtgtgatcg	tcgtagagaa	tgatccgac	gggagacgct	gttccccttc	2760
cgggaggaga	atatcctggt	cattaagaac	tgcgcgtac	catcgaacca	acgagacaat	2820
cgactgtccg	aagtgcacaac	agtaggcgat	cgaccaattc	gatcgctca	tctctcgtga	2880
cgattcctcc	cacacataac	gctcaagagc	aggctcgatg	tccttggcga	gaacgatgtc	2940
gcaaggattc	tgtgcattac	atgtccgtgg	taaagcgggt	tgtgcctgca	taaaattcac	3000
tgccttcagg	ccgatatgcc	aagcggtcgg	ctacggccag	agacttcctt	tgggcagggt	3060
aaaaggtaag	ccagaagagg	ggtgatcgtc	gtttttttgt	tgcgggat	gaccggactt	3120
ccccagcagt	acatatggac	tctgtcttat	tctcgtccaa	ggaagcaaga	gctaaatgta	3180
taagactccc	acggtagaga	gcgattcggg	cttttgggaa	ggatgtaacc	acagtgcac	3240
tcgtccttcg	ctcgtgtcgt	agccacataa	agaagattga	ggtgtcaagg	agaatatcgg	3300
ctctttctcg	gaaataatct	gtggcaaaaca	tttttgtgcc	atctccttct	tatatctgat	3360
cggcactacg	ggcaggatat	taaaggactg	cgggcaggat	cgatcttgca	ccagaggatg	3420
tgtcgatgtg	tgttcctcgt	tccagattcc	agtcgaagaa	aggaataaga	acaacgcgga	3480
gcctagacct	ttcgccttgt	gaatggatcat	tagcgtgacg	gcctgacttt	gggagcggag	3540
gaaatacggc	ttttggcatg	ccccgtttcg	tcccaccttg	caggaaagag	tgcagatcgg	3600
cagatcggtc	gtgaccgaaa	tcattgttaa	atccagccaa	gcaattagat	agggcatctc	3660
tctttcaggt	aggtagaatg	gaaaaaagag	accaatcctt	ctgccaatcc	gtataaggag	3720
cgacacgaag	gttggcaaat	tctgcaagct	ctgcgg			3756

(2) INFORMATION FOR SEQ ID NO:1003

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1495 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1495

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1003

tcggcatttt	cggttcgaaa	atccaagttt	ccaaccaanc	cacagacttg	atcgctcccc	60
tttgcatagc	aaatctgtga	ctgccgggtc	atccggaaca	ggaaactttt	ttcttggtat	120
cgttcaagaa	cgnaaagtct	gtgccgacga	ttggcacaag	tccttcccgg	cctgttagag	180
attgaggact	gtcagcaatc	ggactttcgc	atcggtcatt	atgacagacg	aggaagtatt	240
gaacaccgcc	aaacggtcac	tggttatgctt	aaagggataa	atccgaatcg	tgcgcacgat	300
aattgcaata	cgtagttaga	gatggcatac	gactttacac	aaaattccgc	aacagcctgg	360
agtacagcta	tcaggaagca	acccgtctcg	gctcgtagcc	gtgacgcaag	atatgctcgt	420
actcggtatc	attcgcgacg	ggacaatggc	gcgatcgaca	tcatgcggca	ctatgggatc	480
aaactgtacg	actcaaacgg	ttgatcgagt	tggaagccat	cgccgagagt	ttgcctgctc	540
gcctgaggga	tcgcccattc	tcaccccttc	ggctcgggag	gctatcgaga	tgccacagac	600
atctgtgccc	acatggagga	cgaggccgtc	agcccggcca	tctgttgctg	agtatcctca	660
actcgacaca	ggagagctta	gtacaaagat	atttatgaaa	caaggtataa	aatacgacac	720
cactctgtcg	gattattcgg	acagcgcaac	ccctccgaag	ggaagtctcc	ctccgaaatg	780
gagacctcga	cggttaccaa	gacaacgact	tcgacgacga	agaggacgaa	tccctccgcc	840
ttccgggaat	agcgggacag	gcggaggctc	cggcgacgcc	ccgaacagaa	taccggcgga	900
ggcgatacta	ccaccacgac	acggagtggg	gcgacacgcc	tgcaactggac	accttcggca	960
ccgacatcac	tgccatggcg	cagcaggcaa	gctcgacccg	gtagtgggtc	gggagcagga	1020
gatcgaaaag	tgatacagat	actcagccgg	cgcaaaaaga	acaatccggg	gctcatcgcg	1080
aaaccgggtg	aggcaagagt	gccatcgtag	aaggactggc	cgaacgctcg	tgaacaggaa	1140
ggtgagccgt	attcttttcg	acaagcggat	catcagctcg	atttggtcca	gatggtagcc	1200
ggcaccaaat	atcgcgagca	gttcgagagc	ggttgaaagc	cgtgctcgat	gagctgaaga	1260
agaatccgca	gatctcctct	tcatcgacga	gatacatacc	atcgtgggag	caggctctgc	1320
agcggatcga	tggtacggn	caatatgctc	aaaccgcgtc	ttgcccgtgg	acggtacagt	1380
gcacgcggag	cactacgctg	gatgagtatc	gtaagaacat	aaaaaggacg	gagcactcga	1440
acgccgcttc	cagaaggtgc	cgatagcccc	tcgactgcag	aagaaacgct	gacca	1495

(2) INFORMATION FOR SEQ ID NO:1004

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 625 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...625

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1004

tcagctggca	gctcaccctt	ttcgtcttca	tctcctacc	gatagccggg	ggctgatggg	60
taaggtaggg	aaaactctca	agcgcaagag	tctggaaggc	agaatcagtg	gggaagcctg	120
atgagccaga	tagaagaaac	gcttggcgcc	tcggtatcat	caaggcattc	aatgccgaga	180
aaaagatgca	ggatcgttcc	atcgtgccaa	cgagcagttt	ctccgtacga	cgatgaaggt	240
cttccccgcc	agcagttggc	acatccgatg	agcgaatttc	tcggcacagc	tacctagcca	300

tcgtactgtg	gtatgggggt	acccttatcc	tgaacaatac	gaggagatcg	atgcttccac	360
ctttatatat	tatctgggtga	tcttctacag	tcgatcaatc	cggtcaagga	gctgagcaag	420
gcatacctacg	ccattgaaaa	gggttggcct	ccatgtcgcg	cgtggacaag	atcctgatgg	480
ccgagaacga	atcaaagatc	ccgaacagcc	ccaccccggtg	gtgttcgaag	aggaggtcgt	540
tacgaccatg	tgtggttccg	ctacggcgaa	gactgggtgc	tgcgcgattc	tgtctgacaa	600
tcccgaaggc	aagacggtgg	cattg				625

(2) INFORMATION FOR SEQ ID NO:1005

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 655 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...655

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1005

tcatactcccg	aaggatagac	gtagctgac	atcacatgca	gcgatggcga	tctatgtctg	60
ccgcgagagg	gatgtagcgt	tcgagatagg	ccgaatcgaa	gagacagact	tcgattcggc	120
agctttgtta	ttgctacagc	ccaaagcgtg	atcaaagaca	atggaaagag	tagcaacagc	180
acgctgcgca	tggattcatc	atagtgaag	attgtaatcc	cgatagattc	atcttactgc	240
cacaattttac	gcaattcatt	cggataagcc	tttttttttac	gcgcgggtgc	acatctacga	300
gcctgttcga	agttattaga	gtatcgaaaa	ttgcttgcat	tttatttgaa	tctagtacgt	360
aaaaacaact	ctgctcagaa	tcttaacata	ttccatgcaa	aagagggcct	ctgtgaagaa	420
atgcttcttt	aaggctgttt	taatattgag	caccttaaga	tgttactcga	attctgatga	480
ggtggatctc	tcaaacgggtc	aaatctgttc	atgtggcgga	tgaactatta	tctttggcag	540
acggagccgg	tctttccatc	atcgaatgag	gtgagctcgg	catttccctt	gtggtaaagt	600
cttaatcaaa	gacttattgg	ggtcgaatag	cagagagaaa	agatagcctt	atcgt	655

(2) INFORMATION FOR SEQ ID NO:1006

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1064 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1064

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1006

tgtgtgccgc	atcggtatgc	cngtatttga	tagcacgctt	ataggaggag	ggaaaaaaag	60
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tgcaactaccc	tctcctccga	gttgcctcaa	atcggagaga	gatagccggc	ttcttccata	120
tccgaagcaa	tgcaaaggca	agggcgacgg	attcgtgcag	cagtttccact	ataagagctg	180
ccgacgaccc	gcaaagccgt	cgagagctac	gcacttctct	cggtcgaggg	ctttcatcaa	240
agcctcacac	cattgtgccc	gcgaaagagg	gaaagaatat	cgattgggtg	gggaatttga	300
tcatgagaca	aaaataagcg	gtctgtacca	attattttag	cgaacgatat	tacgatccat	360
cctaaagttc	cggccaaatc	agattgcacg	ggtgggttat	gcgcaagatt	tttctctttt	420
gtccttcttg	aaaacgtgac	ggcaccgaaa	aagttgatgc	tcggaatcgg	tcaaattgtt	480
cgacataatt	acatcagcac	gatatgccat	ttagagccgg	tgccatagag	tgagcagtt	540
ttgtagttaa	tacagtgtac	atttgtgtcg	ataaaaaggcg	aacaaccctt	tcgaccgcac	600
caacatgctg	ataatgaata	aaataaaaaa	gtgaaagaat	ataatgaaca	agcaaaaaaa	660
caatcgcgaa	cgaacgcctc	agcccgacag	gataccgaaa	gagacgaaca	actgacaaac	720
agtcacgaaa	atgattagat	agtgcctccg	cagccgaaga	gaacgacaag	gtggcagacc	780
cggtagcgag	ctcacggctc	agttggctgc	tcttaacgac	acccactgcg	tttatggcag	840
aatatgacaa	ctaccgcaag	cggacactca	aggaaaagag	cgacttatcc	gcaatggagg	900
agaaaagggtg	ctcgtgggat	ctgctgccc	tatcgacgac	ttcgagcgcg	ccctcagcaa	960
tctgggcgac	atgtcgagac	tgctgccatc	aagaaggagt	ggaactgac	tacngcaagt	1020
tcatggactt	ctgcagagca	tggtgtcaaa	aagatagaac	cgca		1064

(2) INFORMATION FOR SEQ ID NO:1007

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2575 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2575

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1007

gtaaaccaga	aaaagaaccc	cagtcctggc	ctacaaggaa	tctaaaactt	tcctcgaaga	60
gcctgaaaca	cattagaatc	gactaaaaac	agaaataagc	gaaagtttta	tcacttaaag	120
agcaaagaaa	ctatgatgac	tagcgaaagt	acgtagaaag	tcttcggaaa	cttaacttga	180
aggtttactt	catggggaaa	ggatcgaaaa	ccctgtagat	catcccatga	ttcgtccctc	240
aatgattcag	tagctatgac	ttataagctt	gcagagatgg	acgaatacaa	gcattaatga	300
cagcaacttc	aaacttgact	ggtaagcaag	tgaatcgttt	ctgcatctac	atcagagcac	360
agaggatctg	aaagacaaag	tgaagatgca	gctctcatgg	gacaaaaaac	agcttcatgc	420
ttccagcggt	gtgtgggaat	gatgcattca	atgccatcta	ttctactact	tacgaaatgg	480
atcaagctct	ggtaccactt	atcacaagcg	tttcatcgag	tacatgaaat	atgtacaagc	540
aacgacttgg	tcgtagatgg	agccatgaca	gaccccaaa	gggatcgcg	ttatctccct	600
cagaacaagc	cgatccggat	ctttatctgc	acattgtgaa	gttcgtgaag	atgggatcgt	660
cgtttccggt	gcaaaggcac	accaaaccgga	gcagtcaatt	cgcacgagca	tctgatcatg	720
cctacgatcg	ctatggcgaa	gctgatgctg	attatgccgt	ttcttttgct	gttcccagtg	780
atgcgaaggc	gttattatga	tctatggctg	ccagtcatgc	gacactcgca	aaaggaagaa	840
ggggcgagaca	ttgacctcgg	caactctgaa	ttcggcggac	ataagctctt	gttgtattcg	900
accgcgtatt	cgtgcccatt	gaacgcgtgt	tatgtgcaaa	gaataaccagt	ttgcagggtat	960
gatggtagaa	cgtttccgca	ataccaccgt	cagctcttatg	gaggatgtaa	agtaggtgtt	1020
ggtgatgtat	tatcggtgca	gctgctcttg	cagcagacta	caatggagtt	cctaaggctc	1080
tcacattaag	gataaaactca	ttgagatgat	ccacctgaat	gaaaccctta	tgcttgcggt	1140
attgcatgct	cttcagaggg	aactcagatg	aaagccgcaa	ctatatgatc	gatttggtgt	1200
tagctaattg	ttgtaagcaa	aataatcccg	ccttccttat	gaaatagctc	gtttggcaga	1260
agatatttga	ggagtttgat	ggtaaccatg	ccttctcaac	aagacttccg	ccatccggaa	1320
atagcccgat	cgtaaagaaa	tatcttgacg	gtgcaacagg	caaatcgaca	gaaaccgtat	1380
gcgtgttctg	cgtttgatag	agaatatcac	gctgggaaca	gtgccgtcgg	ttatcgaacc	1440
gagtctatgc	acggagccgg	atctcctcaa	ctcagagaat	catgatcgct	cgtcaggagg	1500
atcttgaggg	caagaaaaac	ttgcacgggc	gattgctcat	atcgacgaat	cactcgataa	1560

gtaatcggtc	tccttcactt	atctgtttga	tgtattttaga	agacggatta	taacgcaccg	1620
tgaaacccga	tacaatgaca	gaagaaatag	tcgaactcgt	actgcggagc	ggatcagtc	1680
gctactgcgc	agtcacgggg	gcgacttatc	tttattcaaa	tcaaggataa	gaccgttttt	1740
gtgcggtttt	ccggagcatg	ccgatctgtc	cggcagcaca	tgagacagta	gaaaaaatcg	1800
ttcaagccat	gatcgccaat	acttcaaaga	tgacaacatc	gatgtcattc	ttgaaaatag	1860
tgtagcgatg	atctgtttaga	acaagccaag	aattttttga	gaaaacccaa	aagctttttat	1920
gaaagacgta	ttagcgggaat	atgcctcccg	aattgtttcg	ccgaagaagc	cgtaaaacat	1980
atcaaaaatg	gagaacgggt	agctttgtcc	atgctgccgg	agttcctcag	agttgtgttg	2040
atgcactggt	acaacaggcg	acctttttcca	gaatgtcgaa	atztatcaca	tgctttgtct	2100
cggcgaagaa	aatatatggc	acctgaaatg	gccccctact	tccgacacat	aaccaatttg	2160
taggtggtaa	ttctcgtaaa	gcagttgagg	aaaatagagc	cgactcattc	cggtattctt	2220
ttatgaagtg	ccatcaatga	ttcgcaaaga	catcttcaca	tagatgtcgc	catcgttcag	2280
ctttcaatgc	ctgatgagaa	tggtactgta	gtttttggagt	atcttgccat	tatagcaaac	2340
cggcagcaga	aacgctcatt	tagttatagg	ggaaatcaac	cgtcaaatgc	catatgtaca	2400
tgcgacaact	tgattcacat	atcgaaagtg	gattacatcg	tgatggcaga	taccctatct	2460
attctcttgc	aaagcccaaa	atcggaagaag	tagaagaagt	atcgggcgta	attgtgccga	2520
gcttattgaa	gatggtgcca	cactccaatc	ggtatcgggc	cgattcctga	tgcag	2575

(2) INFORMATION FOR SEQ ID NO:1008

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2069 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2069

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1008

agcttgccgac	tgatattgag	agccaagcgt	atcaagcagc	ttattcagat	atccttttttg	60
attgcttttga	ccggatccgc	ttgaaatcga	agtacagaga	aagtaaggag	ccgttatggc	120
cacggctctc	ccgtctgtag	cgtatatttg	ccgcgaatag	gtgccagatc	caccggttcg	180
gggcgatgaa	gagttttccg	atggtacgcc	acttgctccc	ttcaacaaaa	attgtcttca	240
gaatctaccg	aataccacga	gcaagaatac	aatcatcaac	gtccccacga	tgcgtagcgg	300
cgtacggcct	tgatggtcac	cggattgttt	gtctcttcc	gttcatatcg	gtgttttatt	360
tcttgcccg	atcagtatcg	acaggacggg	aggaatgtat	ggcggagtct	gcgagagtgt	420
cagctcgagg	ttttgcgatt	gatggctttc	tctacattca	gtttctgact	catagcagta	480
acttcagaag	tttgaacagg	gcacgatagc	gataatcttt	cacttggtcc	tccagacggc	540
tatttcgcgc	acctgctcga	tggtttggtg	gccgtttccaa	atgttaatac	ggacatcacg	600
acgatgacca	gtcccaactt	ccagttgctg	gctatcctgg	gtgatcgagg	aaagatcctc	660
ccatcacggt	ccaaaaacta	ttcttttctt	tgaagccgcg	gagtaagagt	tgtgaaggaa	720
tgcttctctc	tctgtgaggt	ctccactca	ggagagctcc	cttctttctc	gcaaaggatg	780
tctctctctc	gctgatattg	tttttcgcag	tgtctgccat	tatatttttt	ctgtattcgt	840
agtttggcac	ttcttgaacc	ggggttgctg	gcagactctt	tttcgaagct	gtcagcggct	900
tgcgagtgat	ctggtgccaa	ggactctgtg	ggctccgfac	agacgcaaag	aatcttcatc	960
gggtgccttt	acagttccgt	gcgaaggacg	tttttgacca	tctgtcctc	aagcgaatgg	1020
tacgtcattc	cacaagtcgc	ccaccacttc	tcagacagcc	gagggctgct	tcgagcattg	1080
ctgcaaagct	cccaactcat	cgtttacctc	gatgcgcaag	gcttgagat	gcaggccaac	1140
tgtttctttt	cttctcgcgg	agagatgaga	ccgcgcggcg	ctcgagaagt	tgccccacag	1200
ttttgactcc	gccggaagga	gactcctgta	gtggacaatg	gatgcagcaa	aacgacgtgc	1260
ctgtttcagt	tcccatagtg	atagaagagg	ggcgacaggg	acgaggcatc	gtattcggtc	1320
aagtggcagc	tgcatcgcg	ccggcacgag	cgttcattct	catgtccaaa	agggactttc	1380
cgaacggaaa	ctgaatccgc	gtcctctctc	gtcgaaatga	ttgacgatac	accaaggctc	1440
gccaatatgc	cgtcgactcc	atcctctccg	aataatccat	gaagttggcg	aggtagcgga	1500
agttggaagt	tacaaaggta	agcgctcatc	ttggagaatg	tttcgacaag	catcggcatc	1560

ttgggtcgacc	cgtacagccg	tccttttgag	cttaattttt	ccacgatagc	ccgggaagtc	1620
cgccgcccgc	gaacgtgaca	tcgacatagc	acccgtcagg	atcaatcgca	atccttccaa	1680
acactcgccg	agcatcaccg	gtatgtgata	aacacctctt	tatcaggaca	atgcatgctg	1740
gttgggtctct	tctaaatctt	cactgtagta	attgtattat	accacgctcc	aaagtttagcc	1800
aataacgcat	aaagagagaa	ataatcttgg	agatacgaac	aaaaacttat	caacaccgaa	1860
ggatatgtct	agattcattg	ctgtccgata	aacctcagag	tagggataaa	acgacaagta	1920
attccagtaa	ataggtcgct	ttagagcggt	tttcgcttta	taagcctcca	tccaaaaaga	1980
ttaggctccg	gcgggggttt	ttccccttga	aattgagttt	cccaatcacg	ttccggatga	2040
ttaaagtgc	tgtaaaagcg	acatatcc				2069

(2) INFORMATION FOR SEQ ID NO:1009

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6432 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...6432

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1009

cgttccacgg	ctacagtcgt	gtattgttgc	acgaatgtct	gtacgttacg	gctattttctc	60
cgccaatgct	tctggcatat	tctaccttgg	agaaatcatt	ccgactttac	ttttttgcat	120
acttatgata	tgtattcttg	ctttatgtat	ttcgtgttgt	tcaaaaactg	tttgcatctt	180
gtcataagag	cctcgtaacc	ccaaggatct	ctgctatgcg	tattgcttcg	tgtggaacat	240
cgtttcgctc	acttcttcaa	gcgtatagtc	cacacatttg	ctgagggaaat	ttactgtaga	300
ggttaagttca	ctttgtcttc	tctaaaacca	cgcactttca	agcgcgacat	ggaatgtcta	360
tactgcata	atgcgtagtg	acgagagatc	ggtctttatac	ctgctcaata	tagccaatag	420
tccactgaca	atggcttgtc	ctctacagga	ttcgttgtcc	ttgcagggtc	atcgactaaa	480
acgagtagtt	ctttccctgt	ctggcctcat	cggcaatgga	cgaaagacac	atcattttccc	540
cccgaaagag	gaaagccctt	gtctaataatc	ttgtgcatct	ccaagtgaag	catcactttt	600
tctacagggc	atatctctgc	cttttgtgcc	ggcacatgaa	gccatattga	tagaggatct	660
gagctaattgc	aactccttgc	aacagccact	ttttctgccc	atggttagcac	cggtaatttaa	720
ggttggcaga	gagggagggc	tatatctacc	ggctggaact	tttctccttt	tttccccagg	780
aggcaaggac	atgtggatgt	accagtccca	tatagttcgt	aacactatga	ccaaaccctg	840
tttactccat	ccaagctgaa	tgaatagttt	gacctttgct	aaaacagatc	tatcgctccc	900
aacaattcca	gagctgtagc	caatcctcca	gataagggga	caactcgcca	gaaagtcgct	960
tacggactat	gtcttctctc	gcaaactttc	attgcggatt	tcgatcctgg	cgtcttctgt	1020
tgtttctttt	tgagcctgtc	tctcaactct	ctcaatgtct	ccgaatatgc	atcgataaat	1080
agaaatgagg	aattttcttt	tcctccggat	ccaaaacgga	aacgatagcg	acaaatcggg	1140
taggggagaa	gagagatcat	ctaactggta	aaaacgatca	gatcccgaat	atcttcactt	1200
aaaattgcta	agaacttgat	ctcgaaaaat	caatgtccgt	gcaaactacg	tggcgtgaaa	1260
gagaatatat	cgtccttgga	tgtcacgcag	ctgcattaat	ttgtgtgcaa	tttcatccag	1320
accttttgtt	ttcgtttggtc	tgcttggat	gagatggcta	tttctacacg	agaagaagca	1380
cttcaatatc	ggaagcctcg	gtcaagaatt	cttgctccat	cgacaacgtc	gccctacaga	1440
tgaatgtatg	cacaactcat	ctattacata	cgaaagccac	taatgctatt	tatctgttcc	1500
cgtagtttca	tcaacattca	gcgtgtttta	ccctcttaca	tcgtagaccg	gaataccgag	1560
ggctttttca	tctctctgcg	cagcacttcg	gatttcagtt	tgtacccgct	gggtgctccg	1620
gattgattgt	cacggccaat	agcttacctc	catacagaga	tttgattcat	gtttgctctg	1680
tagaaaaaga	tctactgctt	ccggcaaaag	aaacaacgtg	taaaatctct	gatgatgaga	1740
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agcagccggt	ttacggacca	actgaggtaa	ttgatggaca	aagcagctcc	ggtagctaaa	2040

atcatagcat	cggtaacgca	ggagatgcc	gacacttgcc	agaaagagct	ccatctacaa	2100
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tttttctcca	attctccatt	agagcgagct	aaaactcctt	tgatatata	tacatttctt	5100
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aaatcacgca	ttctctcgct	gatccgccat	ttacacccat	tacgaagtcg	aagtgcagat	5280
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aacttcaagt	tcagggttga	tgccacgctc	gatcattttc	cccccgaaat	tttgatcgtg	5400
ttttccgtat	tggtgaacac	ttcatcaccg	ccgaagttag	ggtgccacaa	tccaaagttag	5460
ccatttcggg	aaaaagctct	gtcgggttag	acgttcatca	ttcgtcatgc	ccacagcacc	5520
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ggtatttccc	acatgagtga	tttcgcttac	agcctcta	aatctccggc	aaataccgga	6000
gcaaaaaatt	ccacattgtc	ataagcaaga	agaggccttc	atcccatct	tgcatgataa	6060
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tccgtatgag	catcatgcgc	actcatccga	agacggatca	ttgatgtctt	tgtctagtctg	6180
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tagtccacga	atatgccgct	ggtatggatt	tgtccatggg	gatctgtccg	atgggggtgga	6300
tttcttcgat	ttctgccact	aacagtctgc	tgccattgcc	atcaggggct	ggaagttctg	6360
tgttgtgct	tatagatgag	attcccaa	tcatcgccaa	cacttcctt	gataaaggca	6420
agtcggcacg	ga					6432

(2) INFORMATION FOR SEQ ID NO:1010

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1000 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1000

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1010

agaccgtttg	ctttggacag	atcgagttct	gtcagcagat	tggcaaagcg	tcgaaagcag	60
tcaggccggg	acaattgcta	atatctataa	aggtagcaca	tagtcccctg	cagaagaacc	120
tctaaacaag	aatttggcca	ttttgcctag	acgatggcct	ttgtttgtct	gaactcaaca	180
tcacgaaact	cacctgatcg	agcctctccc	cccgaatcgt	acttgccgtt	tcggttgagg	240
tctgccaaat	gtcgttggca	tagccatcct	cggtctctat	tttgattgta	cactcacatc	300
ggcttcactt	agctccatga	taatgcgctc	gccatcgacg	ggtcagggaac	tttctgtgct	360
gaggccgggt	gaaccgatcc	gaagaagccg	gaaggattac	aagggctgag	aatagcgggt	420
ttcttttcat	aactgggttag	ttttggtttg	tgaaaaaatg	ttagtatttg	tactgatctc	480
atgttttcaa	atctcattgc	caattcggcc	ggagggtttg	tagctgccat	tatccgaggt	540
ggaagaaaaa	acgtgtcttc	cattttcatt	tcgtcgtagg	gcaacgaaga	aagcggatgg	600
atctgttttg	gtttgtgcgc	ctttctctgg	atagcgcttt	gttcgaactg	cgtcaatata	660
gagggtattat	ccttgcctta	ggtaagcaaa	tatatagagt	atttcatgga	tattgggacg	720
tttttctcct	aaatagtcta	tttataaaga	gcttngggca	gatcgtatgc	tcgtcccaat	780
gcctgcacgg	atgtaactgc	tctgatttca	taactttgac	tttctaatac	gtaaaaattg	840
ttttcgatgg	caaataatac	tcttttggcg	aagactcgac	gtatgtctgc	cttgtcggtg	900
ttctgttggc	tcatggcgat	gatgcacctc	ttgggcagga	agtcactatg	tgggggggaca	960
gccatggagt	ggcgccgaac	aagtgcgcgc	aacgctgggtg			1000

(2) INFORMATION FOR SEQ ID NO:1011

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 755 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
(B) LOCATION 1...755

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1011

gtgaatatct	tcgccgtact	ctttgtagta	gtgggcagct	atctgtctag	gaaagggagc	60
ataagggcat	agcattattc	aaaacatgta	gagccatgga	acatatatac	tgtgcgtatg	120
ataatagaca	taacccaaat	aagcaccaag	acgattcggg	gaaaaaatcc	catcagatcg	180
agatgtgcaa	tgctgaaacg	atggcagtca	gccaaactgc	agcatgccat	ctattgcggg	240
taacaggcgc	atccagcgta	atacggctcc	tctaaaaaac	aattcttccg	taatcccggt	300
attattgcaa	tagcaagcaa	agcccaacc	ttgcctccct	gcacatctcc	tttatcaggc	360
ttgtataatg	ggcaccgcta	cggtcgattt	ctcttgccaa	gccggaggga	gaaagggcag	420
aaggagcttt	atacctttgg	tgtaataact	acggccaaaa	gacatccggc	ataagagagt	480
aacagcagta	tgctttgccc	caatcgatct	gatacggttg	taggcccaca	aaagatgtag	540
cctgtcagaa	aataaaaagg	cttgccatac	agccctcccc	ccgaatacac	gacgctgaat	600
aagcttgctg	ccaatagcaa	cggcaagcct	tcctgtcgta	cccgaataga	gtaggggcta	660
agtgaagtac	agagatcagg	agatagcaat	aatcagtatc	agagcaagat	gactgagtat	720
aggccaatct	ttaaaaganc	ctttttcctt	gctta			755

(2) INFORMATION FOR SEQ ID NO:1012

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2351 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
(B) LOCATION 1...2351

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1012

gggcccactg	ataaagcagg	agtatggaga	ctgcgaatct	atttcggccc	acgtttataa	60
gcctcgtgca	tggtgtgtac	gagctttgtc	ttgtccaaac	gatgaccagg	tattccgaaa	120
taaaaaacat	ggctcgcttc	tgatcgctg	atccacccat	acacatccgt	tctcgcacac	180
ccctattttca	ccttcgtaat	agccaagtcc	gtaccgttca	tgtcgcccg	attctctact	240
tcacgcggtt	gtaggtagct	atatgaatgt	atggaagggc	cgatccgata	cgtttggcatc	300
gggatatgcg	gctctgatca	cttcgttaat	gtcctgtccg	ggcgaagctc	tatggcatcg	360
ccacccactg	cacgcgatat	ttcgatgaag	cggccacctt	gtccggatag	gtaatgggag	420
taaagtcat	ctccggtttc	gtcacgctg	cttgggtgtg	tgtttgattc	tgtctaatat	480
gatttgtctg	tgcccatgat	gattacttct	tgatattctt	cttccacca	ttattgaaca	540
agtagaggca	aagcgaggca	attcgcgccc	cttgcccat	gcgttcagcc	gttgtagagc	600
aggaaccgag	gcagactgtt	ggccatggga	gccatttcag	agccgtattg	aaacgccacg	660
gactatccat	caggtatttc	ataccgccga	catcagcttt	ttctcttggc	tggcacgccc	720
caaatgatcc	aaatctgacg	ccaacgatag	atctgctcac	cgagggtcgat	tttcacaggg	780
cacaattcga	acaggagaga	cagagcgagc	aggccgatac	attatcgcta	tacgacgcgg	840
atccttgagc	atccccagat	tgatcccgat	aggcccgggg	ataaataagt	gtaggaataa	900
ccgccggagc	gacgatagac	gggacacgta	tcatacatgc	accgcattct	atgcagttga	960
gcgtttttac	gtgctcctca	tttcgatgat	gtccgctcct	ccgtttgtcca	cgatgatata	1020
gtgtagctcc	caccttcagt	aggcttgccg	tagtgtgccc	tataggtggg	agagggcttc	1080
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cgcgtttgat	atggatagcc	ggcatcacga	tgtggctcgg	tgctcttcca	taagctggag	1440
gatacgctcg	ccgaggtccg	tttcgatcac	tttataccct	tttctataag	atattcgctt	1500

aggtggcact	cctccgtaac	atggatttgc	tcttcacgaa	ttttttgacg	ccatgatcac	1560
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cttattctcc	aaaagcgggc	agccgcttcg	ctatgcttcg	tactcataag	tttgtctgta	1860
aattttctact	gcatgaattg	tcttgatcgg	caattttctct	ctgtctatca	cccctgcata	1920
tgcattgaggc	acgagctgtc	cggccctgtg	atgtactccg	acctgtggat	atgtgatcca	1980
gcaccttgtc	atgccccata	caggtggatc	ctccggctcc	tccaccgagt	acataccgcc	2040
gaaaccgcag	cattcgtcat	tcgcttcggc	tcgaatacct	ctatgccctg	caccatctcc	2100
aatagccgcg	caccttggtg	tggtagcggtc	ggtgcacttc	actgggggtg	gacagagcag	2160
ttcgcgacac	ccgtggcaac	tgttgtgcag	gctcacctta	tgggcaatcg	ggaggggagg	2220
ctgggtgatct	tcaggtcatc	gtgcaagaac	tcgctatata	ccgaaccttg	gctgccgant	2280
tgcagacatg	tctgtcgggt	ctgggatatg	atcatagttt	tctttcacga	aagcaacgca	2340
actgaccggg	g					2351

(2) INFORMATION FOR SEQ ID NO:1013

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 908 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...908

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1013

taatgtcttt	tctccccagc	aggatagaga	ccctcacgga	cgcaccggcc	ctaccagcat	60
accgaaggcc	atcaggaaga	tcaggattgg	gaaggtgaag	ccaagcccga	caaggcatat	120
tcgctcaccc	cgttcccgat	gaagatgggt	ctacgatgtt	gtatagcgaa	ttgactgctg	180
taccaccac	cgccggagag	catagtga	caacagtttg	ggtatctttt	ccgattctaa	240
tgcttgatct	gttgggatga	cataaattac	ctctttatgc	tccggatcgt	tatcatccgg	300
gagtga	gcccgcagca	tatactgcag	agcttccct	ccttcaaaa	tagaccgaaa	360
acctctctcg	actttcggtc	ttgttcgggt	gccttccct	tggacttgaa	ccaaggaccc	420
tctgattaac	agtcagatgc	ttaaccaact	gagctaagga	agaatagaaa	aacggcttgt	480
gacagcgctt	ctcttgggct	cgaaccaagg	acctctgat	taacagtcag	atgctctaac	540
gactgagcta	agaaagcctt	tcgtttttcg	tgatgcaaag	gtagtgcata	tcccaaacat	600
gcaagagggt	ccgcaaaaaa	aatacattca	gatattaaac	cttctcgcca	ccacatccgt	660
tggggcatct	catccatatt	catgacgaga	aagggtgcc	gcctccagac	ggtttaggct	720
cgtgaatttt	ccattcgatg	ctccgaaaaa	cgtggcgca	gaattttttc	gtattgggtc	780
cacagttttt	atttcccgag	ccaaacgaaa	atttacgcgc	gtgttttcag	gattacgaac	840
catgacgtgt	actgaaaaag	ttgacagttg	ggtggatagt	tcacaatggg	tactaggtct	900
tctataat						908

(2) INFORMATION FOR SEQ ID NO:1014

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 967 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...967

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1014

ttctttgccc	atgggcatct	gacgagacgc	aaggcttcag	cttgggcat	aagttttttg	60
attgcgaacg	tattcccttt	gcccgaataa	agtaatttgt	gccttggttg	ggtgggactt	120
gttctcattc	gccaaccgga	aataattgga	aacaggaata	atataatggt	ggaaatatcc	180
gccttcggtc	aattgacgac	ccggcacttt	caccatagca	taatacaaga	aaatgactga	240
tcgagagaca	gaattattaa	catcagcacc	gaggaggaaa	tgaagaccgc	ctactcgact	300
attcgatgtc	ggtgatcgtc	tccagagctt	tgcctgatgt	ccggacggat	tcaagccggt	360
tcatcgccgt	gtgctgtatg	ccatgaacga	aacggcaatg	tgtacaccat	cccactcgca	420
aatgcgccaa	tgtgtctggc	gggtgctggg	acactatcac	ccgcatggcg	actcttcggt	480
ttatatggcc	tgggtcggtat	ggcacagccg	tggagccctg	gctatccggt	ggtggacggc	540
agggcaactt	cggttcgggtg	gatggcgatt	cgcttctctg	catgcgttta	ccgagtcgcg	600
cctcagcagg	attgccgggtg	agatgcttca	ggacataata	aggaaacggt	agacttccag	660
aacaattttc	atgatacacg	tcaggaccta	cggttctgcc	gacacgcatt	ccgaacctcc	720
tcataaacgg	ggcttcggta	ttgctgtcgg	tatggctacc	aatatgcctc	cccacaattt	780
gtccaagcta	ttgacgggat	tgtggcgtag	atcgaaagcag	atggcgacat	agagtggagg	840
gcttgatgca	gtatgtcaag	gctccggatt	tccccacagg	agattcatat	acggctattc	900
cggagtgaag	gaagccttcg	agacgggacg	agccgtgtcg	ttatcagaag	tcgtgccgag	960
atcgagc						967

(2) INFORMATION FOR SEQ ID NO:1015

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 658 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...658

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1015

taaaggtgca	tggatgatct	ctatgcaccc	ttcgttttga	tccgatacgt	cgaactcgat	60
tgctcagtcga	gcgatcgagc	cactgacggc	taatgtgctc	gagccaatta	gctcccacgc	120
ctatatcggc	aattagcggc	acacgaattc	gggcatcacg	ccttccacgg	caacgaagat	180
gcatacgaga	agcattcgat	gcgttggaag	aggcaaatag	cttgccaaat	cgaggaaatg	240
aaaagcgttc	gtagagctta	aaatgatgcc	gatatccttc	actacataat	ctgttgcatt	300
tatttgtgga	atgtgcagag	cgacacgatg	tccgaaattt	gctaaaataa	tgtacctttg	360
ccgcgctgat	tattatcaaa	tagtgccgaa	cgtttgattt	tcagtgcggt	tttgtccgag	420
aggagcagcc	cagtgtccgt	ggtaaagctc	ctgatgcacc	ggccgaatcg	acagaaaaga	480
tgatcggttca	caaattacta	acaacaaaaa	aacaagcagt	ggatacttta	agcttcaagc	540
catttctgcg	aacaaaagca	actgttacga	aggaatgggt	cattgtagtg	ctgaaggaca	600
gacacttggc	cgtatgtgtg	ccaaggtggc	aaagctctgc	gcggcaaata	caagccca	658

(2) INFORMATION FOR SEQ ID NO:1016

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 687 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...687

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1016

```

cgtctccggc gtacatgtct ccggtgcagt acctttctct ccaaggatct ggaatagtag      60
tgccggcgag gcagttcggt ctcttgccac caaagacgag aggcgccatg tcgtgcgtag      120
aggtggtaca taccgaacaa tagggctccg actcatatcg gcaaagtcct gtcccggctc      180
tttgatatt ctttccaaat gagggatagc agttgcaact gttccattac gacaggcact      240
gcaggggtat cattcccaga tctctacac agacgagcat atccgtggag gaaacagcgg      300
tatcagccgc gacagtgcct cttgcttcca caggtcatcg ttcgcttggt gaagtagtgc      360
tccgacagac gctgccaagc tttcttttcc tcaagctcag atgagcatag cgaaaagact      420
tttcgaaatg gatgcgtgga tgaaggcccc gggcttgccct gattctatta cgaaacatac      480
ttctgtggct cagcatcaa acctctgac gtgtcctctc ctccgacaac ggctgtaggt      540
ctaacgctgc tatatcggtc tgatagaaat tcttcgtcgc cagcgtatat aatccgaatc      600
gaacggacga aggtatcgac agcatacttc gcttgcaagc gtccgaaaat ctgcttgagg      660
tcactctgcat gaacgaagcg gaagggg                      687

```

(2) INFORMATION FOR SEQ ID NO:1017

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2996 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2996

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1017

```

ccaggcgaag tgcatggcat ctggcgtatg aaggagacca aatgatgtcg gcctttcgtg      60
gcacaggctt tcgtcgatgg agatcgggta gtagtggtga gggtttcgta tatcatccca      120
atgagaagaa acgcgatctg atgcggcgat ggaagcggca ctatacagca tgcgtccgaa      180
ggccgagaaa gagttcatcc gtccattatc aggaaaagctc gctggactac actcaaataa      240
atatcgaaac ggcttaccga caacacacga agattcaatg caatggagaa taaaagctga      300
aagtggccat ttcccatggc gacatcaatg gtattgggta tgaattctgc ttaagacctt      360
tgccgaagcc tcgatactgg atctcttcac gctgtcatat acggatccgc caaggtggca      420
gcctattaca ggaagacctt gagttggatt tggaaagttg gaaccaagta tctcggcaa      480

```

ccgaagcggg	gagggcagag	tgaatctggg	aaactgcata	cccgaagacg	ccaaagtggg	540
atgggctgtt	gctctcctca	ggccggagcc	tatgcgataa	aagctctgac	atggccatcc	600
aagccgtgaa	gcaaggcgat	gcggtatgtg	tggtgacatg	ccgatcaaca	aagcagccat	660
gccgcaggac	atctttccat	acaaagccat	acggaatacc	tgcaggccca	agccggcata	720
gagggcgaa	atgctgtgat	atcctggcgc	aggataagct	ccgcacagct	ttggtaacga	780
tgcagagccg	atagcacgcg	tgccatcgct	tatcactcgg	gagcaaatcc	tggaagctg	840
aaggctttcg	atcgcagcct	ccgcatggat	ttcggatatg	tagtccgcgg	atagccgtca	900
tggctctgaa	tccgcatgcc	ggcgacagcg	gctgacggc	accgaggaaa	gcgacacgat	960
ccggccggcg	gtgcaagagg	agaagaacag	ggattgttag	tggtcggccc	ttatgccgct	1020
gacgggtttg	ggggtcggat	atggctctgc	atctcgatgg	cattctgtcc	atgtatcaga	1080
tcaggggctg	atccctttca	agactctctg	catggacaga	ggggtcatgt	gacggcaggg	1140
ctttccatcg	tacgcacttc	gccggatcat	ggtacagctt	cgacatcgtc	ggcaagggcg	1200
aggcttcgcc	cgattctttc	cgcgcgccat	ctatcaggcg	atcgacattt	atcggttcgg	1260
ggcatcggtg	cgatggctac	gcgcaatcct	ctccgaaaga	gttatttcga	gcggggcaat	1320
gacatgagaa	attgccgcaa	acagaagatg	agcattaatt	ttaataccct	atgactctat	1380
gtttaaggat	aagactatcg	tttacacatc	cgggacattc	gtatgttcca	ctacaacct	1440
ttgcgcgatg	tcaactatgc	gcgcagtttg	cagacatcct	tatcgttggc	gtcagcacgg	1500
acgaactggt	cgcttcataa	aggcgccgcs	cattatctct	tttatcgagc	gcttgcaaat	1560
ccttgaagcc	tgaagacacc	ggacatcggt	attccgcagc	atacattgga	tcacacgaga	1620
tcgtcaagaa	gctgaatata	gacgctttcg	tagtggggga	cgactgaatg	gcaaatacga	1680
ctatctgaag	gatctcggcg	ttcaggctct	ttattccctt	acgggacggg	cgtttccctt	1740
acaaaaatca	aggagactat	acacatagct	atgccaaagc	gctgaatgaa	gagcgtcagc	1800
acaagcccaa	gtcgtccaaa	acatgtagga	attatggcgg	tcggatacgc	gttgattacg	1860
ggggaaccaa	ggggatcggt	ctcgcagtag	cccgctctct	ggcaagcaga	gatactccct	1920
cggtcttacc	tacggacatg	atcaggagac	ggcgcgagca	tggcggccga	attggcagag	1980
agcgctccat	ccgtagagct	gctgcaagcg	atgctaccga	tgcgaaaggt	atcgacctga	2040
tagcgggaag	ccttgagcga	gggatattac	tctgcaagct	cttatcatga	atgccggcat	2100
cacatgcgca	cgccctttcg	ggagatgact	atcgacgaat	ggcagcgcgt	attcttgcca	2160
atgtccattt	ccccaccctt	ctgatccaac	gccttctgcs	gcgtacgagc	gcaacaacgg	2220
atgtatcate	tttaccggat	cgctcatggg	aataaaccgc	acggcatggc	tctgccttat	2280
ggagtgaagc	aatccgctgt	acagctctga	cccgcaatct	ggtgaagcat	ctggagcctt	2340
atggcatccg	aggaatgccg	tygcaccggg	atgtgtagat	acggaatggc	agaagaacaa	2400
acggccgaaa	tacgccgaaa	tatcgagaat	aagggttgctt	tgcatcgctt	gcgacaccgg	2460
atgaagtagc	cgaagctttt	ttatttttgc	tcgccaaagt	tattgcaatg	gtgaggtctt	2520
gactcttgat	ggaggctaca	gcttccycga	acagctcaga	catgaacgaa	aacgacaagg	2580
agtaccaagc	ctctctcaat	cactggagac	ggaaaatata	attgaccgga	aattctaccg	2640
tcgatgtgtt	tttactttgc	caagctttct	agtcgtacaa	gggtaacgcc	caataggtta	2700
cgatcctgtc	ctctctttgc	ggattaggcg	gcgggctgtg	cttctgcata	ctccttatga	2760
tctccgttgg	gctgtggccg	gtattctatg	tatgtagtgg	ctaatatcat	ggactgcata	2820
gacggacagc	tggctcgtct	gacgggatca	agagttagat	cgggcgtatt	ctcgacggca	2880
ttgccggaga	ctttgggttcg	cctgcatcta	tatctgcttc	atcattcgct	tgacagcaga	2940
gtatcccgat	gccttaagtt	cgatgaccac	cggtattcct	gaattgccgc	ggtctt	2996

(2) INFORMATION FOR SEQ ID NO:1018

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 338 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...338

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1018

cccaacaaga actcggtaaa aattatcggt gacaatacga ataaatactt caggcttact

60

tcgcttacga	ctcgaagtaa	atcgggtgga	ttcacctgtc	gcaccttcgt	ttcggcgata	120
cgcccatacg	ttctacctac	cttgtgggac	accggacttc	gtggcttgcc	acgtgcctgc	180
ctacttgctg	atgtacacgt	gctgaaaggt	ctgaagaaaa	aaggaacttt	cctgctcaat	240
tcgattgggc	tccggaagat	atagaacagc	atctgcccaa	caaggtaaag	cgtttttggc	300
taagaacaac	atccgattct	acacgattaa	cgctactg			338

(2) INFORMATION FOR SEQ ID NO:1019

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 534 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...534

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1019

gcaacagttc	atattggttt	tcaaaacatt	ctttcattat	at ttgacccat	aacaaatatg	60
attatgggac	agtattcaga	agatttttatt	ttgaaccggaa	aaacgaaaag	gctgtatttt	120
ccttgaaagt	atatagagga	gacggcagggt	tcttttgccc	atgaattgga	aaaaggggcg	180
tccccctcgg	gatttttcgg	tttttccata	ngagtacaaa	gagccggatg	gcgatcgcta	240
ctatgtttga	agaacaggct	ttctttcctc	aatcaggatg	gaactgtgtg	taaatggcca	300
agtccctcct	tttgtctcct	ttccaaatgt	ttcgctgggt	acatttcctn	gcaatgcaga	360
tataaaacgg	agctttcgtc	tatgtggtaa	aaccgttttt	atgaactatt	atgatgaatt	420
gagttatggg	gaggagcagc	ggtggaggta	gtattgcata	gcgagaccta	cccggattgt	480
gctcgatgtg	cattcactcg	cggatttcatt	tcgtgctcag	cttttgtcga	taga	534

(2) INFORMATION FOR SEQ ID NO:1020

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 877 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...877

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1020

gccgaaagga	agacctatcg	gcagcggcat	atcggcgata	accagattgc	cggacctgtg	60
acgatgtctt	tctccggatg	caccttttgc	ttggaaagtt	gatatagaag	tgaggatgat	120
cgatgattgt	gcaggtcgta	taacgcctcc	ttgcataaac	atgatattgt	cgggcatctt	180
cttggtctta	ccggcatcag	atagccttcg	cccttgctgc	gtgatcactc	cgctgataat	240

ccccctctccg	tgcggaagtt	gtaggtaaag	ttcttggctt	cgaacgactg	ctctcatcct	300
tgaaaacag	aaaggccatc	ggataaccgg	ccgtatcgag	gactagcgag	tataaaccgt	360
actgctgtcg	gtattgagat	acatgaagtt	tgctccaagc	gactcttttg	atagctcaca	420
tagctcttgc	cgaaaagata	gcacgattct	gtccgagcaa	aacgatggaa	tcggcgagctt	480
cgtactccac	atatcttcca	attcgaattc	atcgtcatatc	acgctatctt	gccgcatcgt	540
ccggtggaat	cggcaggaag	ggaatctcga	aaagcactgt	caggaatagt	tttgcgagag	600
gcaccgtgtc	tttcgctgta	gaatcagaca	gcgcagctgc	cgacggtggt	gcaatccgac	660
tgctccggcc	ataggacgtt	ccgcaggacc	aaagtagcac	agagcaatcc	gacaaggatt	720
acgggtaata	accataaagt	ctggaacaga	gacgggatac	tctcattcgg	attcattcat	780
actccaggtg	agcaaaggta	aaaaagaagt	tgtaatacac	gatgaggttg	tacggctgcc	840
ccggggccga	cgcattaaat	tggtttgcgg	cttcatt			877

(2) INFORMATION FOR SEQ ID NO:1021

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 803 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...803

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1021

tcccagtggc	aaatcgtcgt	ggtttgccat	cttcgtcttg	gcgtgctcgt	tgagtgtacc	60
gaagaaaaga	ttctgcagta	tggcattgta	ataattccct	cggtggtgct	attgggatcg	120
aaatccttga	ggatggtctt	gaggaagcaa	tatcgaaaag	atgctgagga	agcagctcct	180
tttgcttgat	gaaccaacaa	acataatacg	cgtaattagg	cggattatct	tcgtttctag	240
atctttctat	catcttcact	tgtactagta	tcattaggga	aactgatatc	ggcccgggag	300
atatggccca	ctggtaccac	tcgaagagat	ccttgtagaa	ctgttcgtca	gtgcctcgac	360
ggagaaaaga	tcctcaatat	ctttgagttc	gagtcctggc	gttgtttctt	gtcgattaac	420
ttctggaagt	tgtctgctgc	ttacgacagt	gctgcccagg	gccgagcaag	aagggtgaaac	480
gcttgctgct	gtaatgtcgg	actggctcct	ccccttgtyg	cagaaggtaa	accgccattc	540
cacaaaggat	tgtcctcgta	gtggaatatc	ataaaaagcac	tcgaatagt	tcatgatacg	600
cctgataata	ttctggatgc	caaccttatt	gcgagcctct	tgatctggct	agataccgtg	660
atgtcaaaga	tgttgatagg	attgaatcca	tatcgatatt	gccgatatgc	tgatctctag	720
gatgcccggt	gcttggtcgc	tggtcgtagg	tcgggtacat	ctctaggata	gatcaccatg	780
accacctcaa	atagctctga	cca				803

(2) INFORMATION FOR SEQ ID NO:1022

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 540 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1022

tctttggttt	ttcattttca	tcaaaattat	tttttggtgc	atttgcataa	tttcttttga	60
ttcatgcgct	gcaaaggtag	cagcaataag	aagaaaagga	ataaattcag	tataaacgaa	120
ttgaagccga	acaggaggaa	tagacaaggc	cgaatcttcg	gatttctttg	ctttcccgat	180
attggaagta	tccgtacttc	gtgctcggct	gtggccgaca	ggcccatgca	gcgaattaag	240
aaacgttgta	ggctgtttct	tgctccctgc	acgatgctgg	aagccgttgt	cacggacaat	300
cactccgtgc	atgatgcagg	aagccgttgt	cacgtgacaa	tcacccgtgc	acgatgcagg	360
aagccgtcgt	cacgtgacaa	tcacgtcctg	cagatgcagg	aaacgattgt	cagccgacaa	420
tcgttttcgcg	cacggctggt	tgacctttcg	tcgcctgaca	atgcttatat	aaaagctggt	480
tcagggggca	tgtcacttga	cactgctacc	aataacagat	taataatcaa	tcaaatacac	540

(2) INFORMATION FOR SEQ ID NO:1023

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 777 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...777

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1023

ggaaagacta	ctttcacgct	cggattgcta	cgattgcttc	gaaggcgcgt	ctcaaagtgc	60
agcctttcaa	atgcgggtccc	gactatatcg	atcctaagat	caccgccttg	catgcggaac	120
ggaaacggtg	aatctggatg	ctttcatatg	agtcgggagc	atatcgcccg	actctatgat	180
cgctacggca	gtgaagcgat	gtttctattg	tggagggagt	gatgggcttc	ttcgacgggt	240
acgacgtatg	acgggtagca	gtgccctttt	ggccgaaaaat	ctgcgcattc	ccgtttgctt	300
ctgatccatg	caggcagcac	ggcctattcc	gtggctccga	tacgtatggc	ttcaaacact	360
tccgcccggg	tgtggctccg	gtgggtgtcg	tttcaataag	gttggctccg	cttcgcatta	420
tcgctatctg	gaggaagcag	cgcggatgcc	ggtgtggcca	gcctcgggta	cttgccgaag	480
atgaaagatt	ggaaataaccg	tcgcggcatt	tgggcttgtc	tgtggaggat	ttagtccgta	540
tgattatttg	ccggacaggg	tggcagatgc	catcgagaag	tatgtggagt	ggagagattg	600
cttggtctga	tggcctccga	tgtcgatccg	gttatcgaga	agagagcttt	acggagtctt	660
ctttgcacgg	gaggaaatgc	attgcytggc	ggatgacgaa	gcattttaact	tcacctatcg	720
ggagaatatt	cgtcgctcga	aagccgggaa	gggtttgttc	gattcagttc	tttgccg	777

(2) INFORMATION FOR SEQ ID NO:1024

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 773 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...773

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1024

```

ggaagcttcc accggttaaga atgaggctat cgagcttgcg gatcaggata ggctcgctac      60
tgtgncaaag gtgtccctcaa ggctgtgaag aacgtaaaga agtgatagat cccgcactct      120
gcggaatgtc tgtattggaa caaacagtat tgaccgcaag ctcatcgaat tggatggcac      180
caaaacgaaa agcaactcgg agcaaatgcc atgctgggcg tatcactggc cgtagccaaa      240
gcagcgcagc ttatttgatg attcctctct accgatatat cggcggttcg aacactatgt      300
cctgcctggt cctatgatga atatcatcaa cggcggttct caccggacgc tccatcgca      360
ttccaggagt tcatgatccg ccctgtggga gctgctgctt ccgtgagggc ttgcgcatgg      420
gtgcccgaag gttttccatg cctcaaaaag gtgcttcacg atcgtggtct gactactgca      480
gtcgggggat aggaggtttt gctcctgccg tgaatggtac ggaagatgct atcgaatcat      540
cctcaaggct gtggaagctg ccggatacgt gcccggttaag gatattacat cgcaatggac      600
tgccgctctt ccgagttctt caaggatggt atttacgcta cactaagttc gaaggcgaaa      660
agggcaagaa acgctctatc gatgagaggt ggcttatctg accgaactgg ttggcaagta      720
tcccatcgat ctatcaagac ggatgagcga aaatgactgg gaaggatgga aga          773

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(2) INFORMATION FOR SEQ ID NO:1025

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 893 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...893

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1025

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gcgcagtagc cgaagcatcc gattcttctg cctgcaacaa tatatacttg ccacgccatc      60
gaagctgaga gcatacctcg actgccccaa agcttttgtt ttatggtcag tagttcgtct      120
gtaccatata ggatatcctc gatcaactct tccgggcaaa tcgcgcaaag gcgttttgat      180
cgtcacatcg tacttccgca caatgcctct atttgccaaa agaaaagatt gtttttgat      240
ttgccaatgg ctcaatgcc aattcgtata tactcttctc acgagatgga atgacttgct      300
catatccggc agattcactt cgccccagcc cttacagcgc ggaaatagcc atgaggggaa      360
ttgaaactga aattgtgctg agccggatcg cttacgaaat fcccgtatca ggacacatca      420
tcatccgact aaaatgtccc attcgttttt ttccgaatcc aacaccatca caagcccttc      480
gccttcacgc tagccagtgc caagctctcc gctatacgtt tgctttgatt cgtgctacc      540
acagcttgtc gatctgcact tcgacgtcat gcattttata gcgatcaact tcatcccatg      600
caaaatctcg cgaatctcac cattcacgcg tacgtgcgat agcctttctt acgaagcctt      660
tcgaatagct ccttataatg ccccttcgcg agcgaaccac cggggctaac aaagctatct      720
tacggccatc atactttcca aaatgaggtg gaagatttgc tctcgggtgt atttcaccat      780
cttcttcttc cggnataaga ataagcctna gcaacacgag catagagcaa acgaagaagt      840
cgtacacctc tgtaacggtg ccgacagtgc atctcggatt ccattggtcg tct          893

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(2) INFORMATION FOR SEQ ID NO:1026

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 341 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...341

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1026

gatagtgcag	acaaggtgac	ggtggagctc	gtggacaagg	cgaaggtcac	tatatgcctc	60
gtatgaaggt	caaaactgct	ctgaaggggc	tccgtatgag	cgtgccgagc	gtgtccttga	120
tgtgccttac	gcctcttcgg	tcaagccaat	agaacaacag	cggtggatct	tcatectcgg	180
acaacaacga	acacacgggc	tgtaaacaac	gcatttaata	gtgacaacga	taaatactctg	240
aacgtcttat	tcgacaatac	atccctaaag	attcttcggt	catcgatata	acgacaaaca	300
gatctccatt	atgagacctt	tgaaaaataa	taagtggagg	a		341

(2) INFORMATION FOR SEQ ID NO:1027

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3098 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3098

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1027

cgacaggtag	gcgatctgtc	gcaaagcatc	ggattggggg	cgggatataa	cttgagtagg	60
ttcgatagaa	aacgaattga	tgctgctcca	ctcagcgaaa	agattcgtcc	gacatcggga	120
taaggggata	gtcctcttca	tccggttggg	ttgataagag	agcatggcac	gagctatctc	180
gcgagcctga	taagtttgcg	cacgagaata	gcaatatccg	aggagacata	ccctcttttt	240
tcgagccgat	gataaaacgg	ggaagatcct	gcaagatctg	ctcctccac	gaaaattggc	300
ttccgcttct	tctgatgatg	ccggcgacgg	aagataaatg	cagcgcttcc	atgccggtct	360
acttttagccg	gtggcacaag	ctgctccaca	tcgcataggt	ctgcatgaat	gtacggttga	420
tctctccgg	caacttagga	tgggcattgc	catcgctctg	gcttcgcgag	tcatagcctc	480
acagaggatt	gtggcagatg	cttgtagagg	gagttgttga	actcgattat	ttcgggagtc	540
ttcgccaatt	atatggtaga	ttgacctctc	ccgatgtttc	ggcaaaatcc	gactgacgac	600
ctctgtgagc	agacgccggg	cggcatttgc	gaagcggata	tactctgttt	ggcatcgccg	660
acgaggagg	tgtactttgc	gtgagcagac	tctcggacag	caggggcttg	aagttttcgt	720
actgtaagcg	gctggatctt	gaaattcatc	gatcatttcg	tgttcgatgc	gtaccccgat	780
tttgcataga	cgaagggggt	ctcgctcccg	tcgatgatcc	tgtgcaatag	agaggagcat	840
cggaaatgag	cattttgttc	tcttcttgtc	tgattccttc	gattgtcgcc	aaaggtcgga	900

gatgatacca	agccgggttca	gaaaggggaag	cactgcttgg	ccgtggaata	ctcttgccat	960
tccctgccga	gatagagtgt	gccatttcgg	tcagacactc	tttgagaccg	gattggtaag	1020
ccgagaggag	gctgcctggg	tgggtggcagg	agtgggtttg	gcgtagagtg	tggtctccga	1080
tcgccttctg	ccatcgccat	aaaggtcttt	gtgggaggct	tgacttccct	cctttgagca	1140
ccttggcaaa	ctctaagata	cctccttttg	tacccctttg	aaatcgtaga	agctgattcc	1200
ggctgtggcg	acgatttctt	ccgccgacgt	gcaatagaca	gacgtcgctg	ttcgaagcct	1260
tccatcagct	tgttatctcg	gtttgatagc	gatgaatggc	agctttggtc	ggtagtttgc	1320
cttctcggtat	agcaggagta	gctgttcttt	gaaaagctca	tcaccaagc	tgctatctcc	1380
ctgcggatgt	tatgtccacg	ccccctctcg	atcaggtctt	cgccaaacgc	ctgatccaat	1440
tctcgacgtc	ggaggtatct	ttttctccca	gctgtgcagc	aagacggacg	acagcctggt	1500
cgagcacggc	cttctgctca	tctcgatccg	aaaaccaccc	ggcagtccca	attcatgaga	1560
gaaggcacca	ttacttccctg	aaagaaggag	tcaatggtct	tgactcgcaa	agaagaaagt	1620
cgtttagtat	ttcggtcagg	acttccctgtg	ctctgacttg	tagctgtcgg	tagtcagagc	1680
caactcctgc	atcagctcct	cggcgaaaagg	ggacgtccgc	ccacagccag	actgtacagc	1740
tctctgagaa	tacgctcctt	cattcggcag	tggtcttgtt	cgtgaacgtg	acagcctgta	1800
tataacggaa	agcccgcgcg	tacgcagggc	taaacgaaga	tattcgccgg	taagtgtatg	1860
agcttgccgg	aaccgcgccga	agctgtataa	atgcggagtt	gcttggagcg	ttcatttgtt	1920
tttcttgtgt	ccggggggcaa	gacgataagt	ccggtcatag	ggaagagagc	cagctcgcg	1980
ggattcttct	cgaagcgagc	gatagtctcg	gcgggatacg	atcgccgata	tagacatcga	2040
aaatatgccc	tcgcttatga	atagctcggc	agggatgcgc	ggagtccgaa	tagcccagct	2100
cagccatcga	ggaagtgaia	ataccaggaa	ttgcggccac	tgaagaaaat	cggataacgg	2160
gcacctgact	gacgagtatc	atcttggcac	aactggcttg	ccattgctgt	ccatcaccgc	2220
attgcgattg	cctttataga	cggatattcc	tccgcgggga	agaagccgac	cggctgaccg	2280
ttttgaagac	ggttcagtag	ctcttcactc	cggatacatt	gtgcttgctg	tcaagtcttc	2340
cggccattcc	ttgagtgtag	ccaccgggtat	gaagctgtcg	cgcaggcagc	tgatcatgga	2400
cgaaaaccat	tgaccaatac	gctataatcg	ggacgtaccg	atccgataat	tcgatcaaca	2460
taatgccatc	cagagagccg	aacgggtgat	tgataaccgt	gtaaaggcac	cgccttgcg	2520
catctcttcc	aaatgctctg	ccccgtgcgc	cggtagcaga	cattgatggc	ggggtcagtc	2580
agtgcagcat	gggcaaatct	gctccacgca	gattgatatg	acgggcatgg	acggcggtga	2640
tgctccgtatc	ttgagggcct	tcagcaaccg	gcgcgtcagt	cgctcgctccc	ctcccgtacg	2700
gaaaaaagac	gaagtacatc	ttcttcggta	agaacttccg	gacggagtct	gacatgagcg	2760
atcgggtatt	aaggatcttc	gagttgcctg	agctatgatt	accgcctctc	tttcagggtga	2820
tgtctgcaca	tggtctcgctg	tctctgatac	cgaggacgag	cactgtattc	agaatcagta	2880
tttcgaacac	gaatagagcc	aaatatgacc	gctcaagacg	ataagaaaaa	gaggaatggt	2940
cggccgttga	acgtaaggaa	gtccacgata	ttcatgatcc	ggcggtatc	ttacgcagat	3000
gctgccgaag	cgtttcgggg	atggtatttt	gcggataacg	gcctccaatt	ggtcgagaag	3060
cctttgcagc	cggggtgtcg	cacgttctgt	atcaacgt			3098

(2) INFORMATION FOR SEQ ID NO:1028

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 681 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...681

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1028

tatgggtgcag	gccggcgctgc	tggaagagaa	gaaaaaccgg	atcatggaat	aatgggtgtcc	60
tccacacggc	cgttcaacct	gatgatgggc	aaaatcatgg	tatcggtctc	gtaggcctta	120
cgcagctcat	ctgntgggga	gtgctcagg	actgctgctg	acggtagcac	agatcgctt	180
cctcggcaat	ctgtacgcc	agaggccctg	agtcggatgc	aggcttccga	cataacgggc	240
atggctcgtc	catgaatgca	gaggacttcg	ccgagatgaa	ggaagtgatg	aacacatcgg	300
gggcatcaac	ttcggagagc	tgttcgtgat	gtttctcacc	ttctcatcgg	cggctacctg	360

ctctactcct	caatcttcgc	cgttatcgga	tcattggtatc	gaacgacgaa	gacaccagcc	420
agttcatgat	gcctgtgatg	acctcctgat	gttcggcttc	tatgccgcct	acggcagcat	480
gaacaatccc	aaggatcgct	cgcattctgg	tgctcgctga	tccctttcac	ttccccctg	540
tgatgatggg	gcggttgccc	tacgacgttc	cgctgtggca	ggagttgcaa	gcacggcct	600
gctgtacgga	tgcttcgtat	tgaagagggtg	gatcgggcga	agatttaccg	cgtaggcgtg	660
ctcatgtacg	gaagaaagcc	a				681

(2) INFORMATION FOR SEQ ID NO:1029

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 669 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...669
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1029

tcgttcctgt	cttaccogat	ttcaatgcag	ccgatgcagc	aagtatagta	cgcattccga	60
tgccaagtat	ctcttcgtat	cggacaaaat	atgggagaga	tggatccgtc	tcagctcctt	120
ctcctgtgcg	gagccgtctc	tatccgtatt	atacggctct	cctggatcgt	acggaggggtg	180
gcttgctcag	ccaggagtag	aaggattgag	tcgctctttc	tccgaacact	acccttccgg	240
cttcaggcag	aggatattcg	ctatgccgag	gtgtcgaacg	acgatctcat	cctgtgaact	300
atacctccgg	tacgaccgga	ttcagtaagg	gggttatgct	tcggccaaca	atctggccgg	360
caatgtaacc	tacgttaagg	atagagacat	tagttccgag	gcgagacgat	cctttgcttc	420
cttcatttgg	cccatactta	tgctgtgctg	tcaacttctc	tacgccattg	actatagggtg	480
tgcatgtgta	atcttgggca	aaatcccctc	tcctctcact	ctgatcaaag	cctttgcagt	540
gtacgcccct	catttgctcat	catgggtgcct	ctcatcatag	agaaattgat	cacaaggcaa	600
tagctccgaa	aatcaagaca	ccgttaatca	aattcctcta	agaacttctg	tgctgaaaaa	660
ggtgatata						669

(2) INFORMATION FOR SEQ ID NO:1030

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2624 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...2624
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1030

gtgaacgaaa	cggatgggtg	cgtctgtatt	ctggccggag	atatggcaag	cttcgcgcgg	60
tcggcagtg	ggtgagtcgg	gcattggatg	ccgggggatg	gaaacttcc	acggattg	120
tatacatgaa	tgtacactga	ccgaggtgta	cgtcagcaga	aagaatccgc	cattctctct	180
ctggccacga	gcctaccggt	ttactttcca	atgggtatttc	ggaaaaaatc	aagttgaaca	240
taaggattcg	ggagatgtgt	cggctatttc	cggcactgaa	ctgatagaag	cactgatgct	300
tcgtttcgga	ctgtaggcat	ggacgagacc	attattgtca	gctttccaat	aaacgtgctt	360
tggcctataa	tctgggcata	cgcagtcagg	tatgtactac	gaagaagagt	tgattcgggg	420
cgatcgattg	gtggtgacgc	gaataactat	cgttattgtg	acaggcgaga	caagacagac	480
ttcgttgcca	tggagagata	gtggagattt	tgcggttggg	caaacgatac	gagctgtacg	540
atttagattt	gccgatgcta	ccatcagcct	tgtggagcaa	gggcgcgaat	agaagcaaga	600
ttgctcctcg	atggactgac	agccgaacaa	gccggctgac	tcatgcacaa	agacaaaaac	660
tgtatgatgc	agttgcttga	ggactaaatt	ctatggcaag	tatcccgccc	agacgcaaag	720
cgatcaaaga	ggatgtttct	tttcggcctt	ggaagtaaag	tatgcctatg	ccatcacctg	780
ccacaagcgc	agggaggaca	gtggaaacat	gtctatgtag	atatgggtat	gctagctatc	840
tgcctcatga	cgagcaactc	tgtcgttggc	tgtatacggc	agtaccggag	cttcggagcg	900
actctttctg	gtcaataactc	cgaaggatat	gtcccataag	aggggaaaaa	gtccttaca	960
aatggaagta	gagacctata	tcaccaattc	gttcacctgc	caatacgttc	ctttaccgtc	1020
cggcagcgaa	cgctgtcgtc	atagcgcagg	tatagatata	tacgggtact	cagcagttgg	1080
agagcgacag	gttgagggca	ttttcaaatt	ctgccaccgt	attatcgatg	tggtattggc	1140
atacaggcgc	gactgccaac	tcagacgact	atcgaattcc	atacaggttc	ggcttttatg	1200
gccgaaccga	attcgtgtac	gatggctttc	cttcgggaaa	gcggtggcga	gccaaagtcta	1260
tatcgctctg	atcgccattt	gaggatgtac	gagaggggag	ataggaacag	ttccagtttg	1320
gcgacttgcc	atagactttt	ttgctttttg	tatccagtcg	tacttcatac	cgtaccggaa	1380
ttgaagatca	tcggagcaag	gaatgcagat	tgtctttttg	gtgttttcag	ctcgattggg	1440
aaatagctgt	gtacgcattt	ccgcacgcaa	gagtagtacc	actgcttgaa	agccttatag	1500
ccgaagttag	aacgcaggcg	agcaaatcct	cggccactcg	atagcgattg	accgtgtcct	1560
tggctgcatg	aagacactta	gtttgttttc	caactcattt	ttccagcgaa	tcttcttttg	1620
cgatattggc	ggacgatcag	attgcccgaac	atgatattca	ggttgcccga	cctcctttgt	1680
accagttttc	ggaaatgtag	ttctgtgaga	actgcccatt	gtctccatgc	tgaaaaacca	1740
gtagcggggt	ttgagttcga	ttcccggatt	ttttccggca	tgattattct	gtcggataag	1800
gctcccccat	cgagagctga	atgtcttgtg	gttttatata	ggaataatcc	ggtgcgaaag	1860
gcccatttcc	gtacggctat	atgtgaaaag	atccaatcgg	cgatattgca	gtcggtcagg	1920
actctgcgtg	ccaattccac	ttctgcaatc	atgtcgctca	atccggtacg	ggaagagggt	1980
ctgtccggcg	gacttggttc	aaacgcgagg	tatctcaggc	atggtgattt	gccacattcc	2040
tgctgctaac	ggaccggaga	attttcggct	acgagcggta	gttcagata	gttcattcagc	2100
aggcggcgga	gactatcgga	gatgtcggga	ggctgtctgt	gtcggctaac	ggaggatttg	2160
cagttgggac	agtggaaagca	caggcttcgt	ggccatcgca	ccggtgctcc	cataaagcaa	2220
cagaacagga	atatggagag	gagatatctt	atctcattgt	agtcaaaaac	agtttttaca	2280
taaccatttt	atgccgggca	aagtatacta	ttcttttatt	tccttttttg	gggaattttc	2340
cacaacagga	tagatcatat	ttttacgctt	tgtatcctgt	tttttgaaaa	agttaaaccctc	2400
ggagttttta	tttgactctc	ggggttcgct	ttcgtttatt	atctgtatcg	tgaagttttc	2460
tattgattgt	tgaaaacctc	acatgcgctg	cagaggctcg	aaccaaattg	cggtcgccat	2520
agccgttgtc	gatacgggct	acgttgagca	gaacttatte	tcacgcangt	attccagcgg	2580
ataagctgcc	tttcgcggag	tacggatg	accagtcggt	agcc		2624

(2) INFORMATION FOR SEQ ID NO:1031

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 652 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...652

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1031

gaaaaatgct	gtaaactgaa	ataaactttac	catatcgttt	ttttataagc	agaatgcctt	60
ctgccggaaa	ataacgccgg	ttccctattt	tgaagacgt	aatttcccgt	ttcttcccca	120
cctcaaagct	gttttgaaat	gtattcgaaa	atcctcgcta	catcaaaagc	atcgtaatag	180
atttgttcct	ccttttcaaa	tttttctctg	gcatcatagt	ttcaggttgt	aaagattatt	240
cgtttttgtt	caataattcc	attgtttcgc	atataactga	tataactctt	ggcctacggt	300
ctttgacgtc	gaccgtttgc	atgattcttt	cgaccagttc	gtttaagata	aatgctcttg	360
ggcgtgaaa	acttcttttg	cgatttgtec	cattccgtaa	gtttccgttt	ttctttgtct	420
tccggagatt	tctctccccg	gaaacytgca	tttctttttc	cctgtcccat	ccgaacagca	480
tcaaaggtac	tccaacgggc	ttccatccct	tactttaagt	gcttttacga	ccgacaaagc	540
ggattctcat	ctttctctat	ggagaggatg	gccgccgact	tgcgctgagt	tccgaaccga	600
tatgcccacg	cagtttaatc	cgttcggaca	aaatggatag	acagataata	ca	652

(2) INFORMATION FOR SEQ ID NO:1032

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 972 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...972

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1032

tgatggaaaa	gtaagatttt	tcatagttaa	ggttttgggt	aatttgggag	gagtgagtcg	60
tgagactcgc	tccttttatg	ttctgatact	cttgtctacg	tctcttgtct	gaatttatcg	120
ttatttttcc	ctctatatga	aagagttcag	tactttcgcg	ggcaacaaag	ttaatcgatt	180
tcaacaacaa	ccaattagca	ataataatac	gtactatggc	tctaagattt	atcactgcag	240
aagaacagcg	gagtttgtgc	atcacacgca	caatgtcggc	tttagcgggt	ttaccctgca	300
ggcaacccta	aggtagtacc	tgcggcaata	gccaagcgag	ctatgcagcg	catgaaaaag	360
gcaatccctt	caagatcggt	atgttcaccg	gtccagtacc	ggtgctcggg	tggacggtgt	420
cttggcacag	gccgatgctg	taagtttcgt	actccatata	agtccaataa	ggatctgcgc	480
aatcttatca	caatggcagc	acttcctatt	tcatcttcca	tctctctact	ttggctcaga	540
tctgcgctat	ggcttttacg	gcaaggtgga	tgtggccatc	atagaggtgc	agacgttacc	600
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cgaacctaat	gacgagagcg	attttgccgc	ccttgaccct	gtacgcaggc	tattggggac	900
aatgtggctg	ctttcctcgt	gagcgaaatg	aagccggacg	aatacccaaa	gattttcttc	960
ccctgcaaag	cg					972

(2) INFORMATION FOR SEQ ID NO:1033

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2632 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2632

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1033

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ggggaatctg tcggaatagt gcectgatttt cggccagact gttttcgaat attgttcttt      60
gaagagaaag actcctacag gattggcgat atttttctca cggcctcttt ctgcgcgatg      120
gtgtattccc gttccatctg atccatttct cctctgctag ctcttcctg aggggtggaat      180
cgctgtaaat ttcattatct tgttcataat ttcggccatt ttgctgcgta tctcttgata      240
gatgtgttcg tcgggggtacc ggtgacygat tcgtttccgc tcttcatctt taccgatgt      300
gtccgtttctc aagaaaagaac ggaatgctga atacatcggg agcgtcatac aggagaggta      360
gcgagcgacg gtcgaatcct gtctgccttt gagctgaatg tgccgttgcg gatgatggcc      420
gaatcaagac ggggtgacttc ctgttttcga tagattcgag gaatacggta tcgccatcgg      480
cggcatactc accggtgcaca cgatcttgta tccggatttt cctttgtcag agcatgaggg      540
gacagcaggg tgatagccgt ggccgctatt gctatataag tcagcttctt gaagctgcga      600
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gaagaaagtg gcgaagaaaa caacgaaagc actgtcatgg ctctccgcgt ggcttttgat      960
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gaaagcaaaag cggccgggaa cagcagatag agcaagggtg ccattgaggag acgaccgtcc      1140
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tcgtcccgtg agtgcttcgc cggcgaggcg aatccgtcca taaagtagga gaagagggtg      1260
aagagttgca tcagagagca tttgctgccg cagtgatctc tcccatagca gaggacgcag      1320
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cgcgctcggt gcgaaaaaag gcaatgcccg gagtaatgcc agaccgacat attgggcagc      1500
gatcgttccg gcggcaagcc tcccactctc atatcaagtc cctgtacgaa gaaaatactc      1560
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cgaagcgttc tgtcagagga gctgtatgag aagaagcagg gctgcgacaa ctgccatcgc      1800
gatgccacgt gccgatagcg tgtgatggct cgcacatcgc tacgcccga agcctgtgcc      1860
gtaatcccgt agtcccata cggaggaagg cgaagagcca aaagacgaaa tgaccacccc      1920
cgaagccaca gccactgcc cgatagagtc ggccgtgtcc tacgaccggc cagccctaca      1980
tccacgatgg agaggagcgg tacggtaatt tggagatgat attcggaata gccaaagcgca      2040
ggatgcgcct gttcatctac gccccgcggg cagtgcctat cggataggga ggagttgtca      2100
tgaggttggt cagataggaa aacagtcggg ccgtgcactc ttcagaatg tccagcccag      2160
ctcgaagccg gatgctctc catagtacgg atcggggaca tggctgaat accgctactg      2220
ctgaaatccg tcatcagacg gatcttgccc gcagctcttc ggtcggagcc agttcttgca      2280
gccgtctctg attggcaaaag tcttgccgat gatataatcg aatcgttcga aatcctcata      2340
ctccaccgga cggagagcga agtgagatcg tagccccggg gagcagcgtg tgcacgcatt      2400
cggcatcggc cttttccccc tgatggtaat tgctcagtc gcccgaaatcg tgtggaagcg      2460
atcggcatgc cctgtctctt ctacatacga gcgaaagacg cctcggcaga cggagagcga      2520
cagatgttgc cgagacatac gaataggatt tatgtggctt cacaagcgga ctatcgaagc      2580
aaaggtagtc gcttggtcgc agtcgcaagc tgttggtcac caccgaaata ga      2632

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(2) INFORMATION FOR SEQ ID NO:1034

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 616 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...616

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1034

ggacaacatc	gtcaatacga	tcaatagtct	gcgcgatacg	attgctattc	gttcgctcatc	60
gttattcttg	tgggtctggt	tttctctcga	cgatggcggc	cacatttatc	atcgggtctga	120
cgatccctat	ttcactgggt	gcctccctat	ctacctgatg	gctacaggca	atacgttgaa	180
tatcatttct	ctcagcccct	ctctatcgct	atcggtatgg	tagtgggacg	atgccattgt	240
agtgcgcgaa	acgtaacgac	acataattgaa	cggggcagct	atcccaagca	ggctccatac	300
acggcacgaa	cgaagtgggg	atctccgtta	tagcttccac	gctacgatgc	tggctgtatt	360
cctcccattg	acgatgattc	aggggcttac	ggtatccttt	tccgtcagtt	gggttggtac	420
gtgagtatta	tcatgattat	cctacggtag	ctgctctcag	cctgacgcgc	atgctctggt	480
cgcagttgct	cagcgcgaca	naaagcaagg	acggctgcaa	caaaagctct	ttgtcccgc	540
gaacgctttc	ttgattctgt	agaatcgagc	atatgagccg	tttcttgatt	gggactgtga	600
gacacagaac	cggtta					616

(2) INFORMATION FOR SEQ ID NO:1035

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1347 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1347

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1035

ttttggacga	actcatcagc	cgctaccccc	aacgttattg	tagagcttct	cgggacgctg	60
cacttttcgt	ttccatcccc	cccctgaaaa	gagcttcacc	gtggcttcac	taatctcctt	120
ctaagtggta	agcgcgacac	aaataacctca	tcacaccgga	atcgaacaaa	agcaaagggtg	180
cctatatcgg	ctgcgtacag	ctgtaaaccg	cgacaaggtc	agtatccggc	tgcgacccga	240
taatagggag	ccaagccctc	cctggccaat	ggcgaatggc	tttacctct	gcacccgacg	300
gcaacatgag	cggtacgcgc	atcaatgtgg	ttttaccgca	cggagcatac	aagtggacaa	360
tectgcgggc	atcgatcggg	gaacaaacgt	atccgcaatt	acgacatccg	tttcgagaaa	420
gctctctcgc	aagacaactc	gccgttcgcc	tcattcccgt	atctcttacc	ttgacggatg	480
ttccggacgg	ttctctctct	cgatagaggc	cgactgctac	ccatctgcaa	aggctacgaa	540
acagctgctc	acgagcctgc	cacacggttc	gatgaagagc	agatccgcag	aatctgacca	600
aattaggtgg	tacaccgctt	gaagccgtat	cagtcgaatc	cggctcagtc	acgactattt	660
catcccgttt	tctctcattg	gccggtaagg	agagatgcag	tccaatcctt	catcgagaaa	720
gcctcctcta	tgcctaacgt	gaggaaaaac	cggtcgtaca	acgtcgcatt	tctcctgcgg	780
cgagagcttg	caggaggagg	agcagagcct	ttccttctta	gccaatgtgg	cgacaaggaa	840
gcagaaacct	tctatcggca	aatgggatat	acatctatcg	ccccgccttc	gaacactcgc	900
atccccaaag	cgttccgctt	atgttttcga	acactgtctc	cgctatcatt	tgggctattg	960
ccccaccctc	caacacaagg	atcgccgtac	agagaaccgt	actacctgat	tcatggcgaa	1020
actcgtctgg	actccgattc	gactgccaac	actgtcaaat	gttggtctat	cacgactcga	1080
aggaatcaag	cagacctgat	acgaggggaa	acagagtaag	gtgtgtaatc	agggctgttg	1140
cattagaaat	cggatgatgg	tattccatgt	tcatagccat	ttgtatatag	acgtcagttc	1200

gacgtaagaa	aagaccaatg	gtcattcgca	aaatgccgtg	caatgggtctc	taataagcct	1260
ctgggcgatg	ttgtcttctt	cttgatggca	tacttgctcc	ggggctgccg	aggtattctt	1320
ccaaatgtga	agacgctcgg	aataggt				1347

(2) INFORMATION FOR SEQ ID NO:1036

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2990 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2990

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1036

aatgctctat	cggtcggggg	ctttgtacgc	tgcaatgtcc	ggttccggac	tgcactattc	60
ggtcttttcc	gggaaaagcc	tcagctcgat	aaggctgcat	caccgactgc	ttccgatggc	120
aaagcatcat	cccctgacag	attggttctt	acctccaaaa	aagaaatgga	ggccaaagga	180
tgggacgaag	cggatgcatt	ctcttttagcg	gagatgctta	tgtggatcac	ccgtccttcg	240
gagctccgtc	gtaggaagaa	ttttagaagc	cgaagggtt	cgtgtggcta	tcgtcccaa	300
ccgaactggc	gcgacgatct	tcgggaactc	cgcaaattgg	gactcctcgc	ttgtttttcg	360
gagtttcggc	aggagcgatg	gattcgatgg	tgataaatac	accgccaatc	gccgtctccg	420
cagcgaagac	gcttacacac	cgacagacgt	tcggatatgc	gtcccgaacta	cccaaccatc	480
gtttacaccc	catactgaaa	gagctgtttc	cggatgtacc	ggtcattgtc	ggggggatca	540
agcttctctc	cgccggctga	cgcattacga	ctattggcag	gacaaattct	ccccggtata	600
ctctatcaat	caggtgccga	cctcctgate	tacggcaggg	agaacttctt	ttgcacgaga	660
tagcacagcg	attgatagcc	ggcgaacgtt	cgatagtgtg	aagagcattc	ggcagatagc	720
ctatcttggt	ccaaaggaaa	gacacctgtg	ccctgcgaaa	acgatcggca	tctcttctcc	780
catgagaatg	tttgtcggac	aaacgcaagc	aggcacagaa	cttccgagag	ataagataca	840
gagcaatcgc	tacgaggcag	accgcatact	tcaggccgtc	gggattctac	catcgtggtc	900
aatccccctt	ttccacccat	gagtacggca	caatagatca	gtcattcgac	ttaccgtaca	960
cgcgcctgcc	tcacccgcgt	ataaggggaa	gattatttca	gcctatgaga	tgatcaagca	1020
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aagggaat	tatagcctca	cgcagcgaag	cgctccgtact	ccgcgaatga	aagagatcac	1140
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aaaatgcagg	gctacgacct	ctcgactgca	aacgctgcaa	aaagccgagt	tgcatctatc	1260
cgaatgtgtg	ccccatctga	atgccgatca	tcgtcctctg	ctggatttat	tgagaaggat	1320
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ttcataatta	taaagacaag	gtactgaaga	aagctgcgga	caatatacgg	aggatcttat	1440
cgtaagcat	gtatcaggac	gtctgaaagt	gtctccgaac	atagctcgga	tcgcgtactc	1500
aatctgatgc	gcaagcctct	ttccggcagt	tcgcgaact	caccaaactc	ttccaacgta	1560
tcaacgaaca	catgggctgc	gtcagcaact	catccttat	ttcatatcca	gccaccggc	1620
tgtaccgaag	aggatatggc	cgaactggcg	atactgacaa	aaaagccgac	ttcaaactgg	1680
aacagataca	ggactttact	cctacaccta	tgacctagcg	acggaaatgt	actacaccgg	1740
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cagcacatgt	tttcttcttg	tacaaacggg	aaagaagcga	caagatccgt	cgcgagctac	1860
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gatcgccata	ctcctccgtc	cacgcaacct	cgcaaaagca	aagcaaaagc	cgccattctt	1980
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gaaaaaggtg	gagacgagcg	aaagcaatcc	tcaaatcttc	aatcagagaa	aagcagcttt	2100
tctcgggtca	caacatgaga	aagaggccgc	gccactgtt	ggcgccgcct	ctttgctgga	2160
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accggccagc	atgaacgata	cttcattgtg	tccacagggt	gcattcttacc	atcgtaaacc	2580
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aagacgagct	taccgcccc	ttccaattcc	actacctgcg	tgtccgcgga	gtgatacgaa	2760
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gcacgagcag	ctttgtaatg	gtctcacgat	aagggatagc	aggctctata	tattctatct	2940
gatcttttcg	ttatgttcca	atcgccattt	aagcgtacgc	aggggaattc		2990

(2) INFORMATION FOR SEQ ID NO:1037

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 657 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...657

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1037

gggcaaaaac	tcctcgaaca	actgatcttc	acctttggga	gtagggccga	aataatcaaa	60
ggagttcggg	cgatcatgat	caatacggaa	tccacctctc	gactatggcg	tagttgtgct	120
tacgctgcac	caagtcctta	ggactcgggc	catattgtcg	cgcaagtagt	cgaagccgaa	180
ttcgttattg	gtgccaatgt	aatatctgca	ttataggcct	tgcggcgggc	atccgaattg	240
ggctgtgctt	atctatgcaa	tccacggtta	aacctatgaa	catatacagt	ggcccatcca	300
ttccgagtc	cgtttagaaa	ggtagtcatt	gaccgtcact	acagcacgcc	gttaccagtc	360
agagcattga	ggaatacggg	tagggtagct	acaatgtctt	tccttcaccg	gtagccattt	420
cggcaatttt	tcctttgtgt	agactgtacc	accgatgagc	tgaacatcat	agtgaatcat	480
gtcccacaag	tttcattgcc	tcctgccacc	cagtggtttt	ggtagacggc	ggtatctcct	540
cgatcgagac	gaaatcatgg	ttgattgcga	gatcacgatc	aagatcaggg	ctttgactcg	600
aatagttcgt	ttgggcgaat	ctgcgacagt	atctttgtaa	tagcaaagct	tcggggag	657

(2) INFORMATION FOR SEQ ID NO:1038

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1089 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1089

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1038

ggacactaat	ggtgaaaata	gcgaattgtc	ggtttgctgt	tgttataaaa	acaatatctt	60
tgttcccata	gtagtggtcc	ctgctcgtct	cgaacaagtg	agtggggtgt	aagagggaat	120
cgggtgagaa	tcccagagcag	tcccgcctctg	taagctttta	ccgccgtgtc	ggttttgaca	180
tgcggactct	tgtcgtctcc	aaatgatgcc	actgttcatt	ctccactatt	agagggtggag	240
ctgaagggaa	ggcgcgacaa	acagaaaaga	gatgaagtaa	gccagaatac	ctgctctacg	300
agttgcctat	aaagtatgga	gagaagacct	cgaggaaaag	agttcccccg	cactaagaga	360
atagatctca	ggaagtatct	ttttacaata	actattacaa	tggaagaggt	aatccttcgc	420
atcgtaaagc	gtgatggcca	ttgcagtcgt	tgcgtccgga	aaaaatccgt	caggcgataa	480
tcaaggctta	cgcgcaggag	gtgtgcacga	agaagctgca	cgtatcgaca	atattgtccg	540
tctgtaaccg	atcttgctcg	tcagagcggt	gagcttgcca	ccgtggaaaa	atacaggatc	600
gtgtcgagga	ggaactgatg	cgtttgaaatc	ctttcatgcc	aaaaaatata	ttatctatcg	660
agagtggcgc	accgtagagc	gtgacagcgt	acatccatga	agcatacgat	ggacggcatc	720
gtaacgatag	agaagacgat	gtgaatctgg	gtaatgccaa	catgagttcg	catactcctg	780
caggcaaatg	atgacttttg	cttcggaagt	aaccaaggac	tatgccagca	aattctgctt	840
tcgctacgct	atagcagagc	acacagggca	ggagatatatac	atttcatgat	ttggactatt	900
atccgaccaa	aacgactaca	tgtgtccagt	agatatagca	gacctctacg	aacggggggtt	960
ccgtaccaa	aacggcagca	ccgtacaccg	cagaatatcc	atagctatgc	aacgctggct	1020
accatcatat	ccagaccaat	cagaacgaac	agcatggcgg	acangctatc	ccggccttat	1080
ttcttcgatg						1089

(2) INFORMATION FOR SEQ ID NO:1039

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2897 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2897

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1039

tgcgatttct	tgtatctgcc	cggtggttat	ccggagtttt	acctgccgga	ttgagtgccca	60
acgaatccat	gaagcggctg	gtacgggact	atatcgagcg	ggaggttatg	ctctggccga	120
gtgtggaggt	atgatgtacc	tttgcaacg	atacggggca	tggacggacg	ggactatccc	180
atgtgtggcg	tattgctgag	acggctacga	tggaaaggaat	gcgcctgcac	ctcggctaca	240
ggcgatggta	tacaagggga	aagagctacg	aggacatgaa	ttccactact	cttcactatc	300
ggctctacgc	cgtccgtggc	acagcaatcc	aattgtggag	ggagagcgtg	gagactccgc	360
tataccgata	caagaatctc	ttggccggat	atcgcatctc	tactgggggtg	agcatgacga	420
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gccggaggag	gatgagcgtc	agaccgtgct	gtacgatttc	agatgcggat	gatggcagcg	660
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aagcagcagc	caactcgagg	cttttatcga	caggcttttg	gccgaaacaa	ccgacaacgg	780
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caagccgagt	tccgtcatatc	ttcacaggtc	gtgctcaatg	gccgtccgat	aggcaatcgg	1320
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gaattgaatc	tcgcgcgatac	cgatatagtc	atatgccgat	ggccatccat	gcaggtgcat	1500
gcgtgatcct	tgtggccgaa	tcgaccgtgg	aggcgtgttt	gcttcgggtct	acggttctat	1560
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tcgcgacggg	acaacggtat	tggggatatt	ggcggattcc	aactcatggg	catggaggtt	2040
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taacgacgtg	atgacaggcg	agaaggttac	acgtcgacag	gcatttctgt	ttctggtcat	2160
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ttgtatgggt	acttatgtgc	atgtatcctg	gacaatcccg	ccgtaataga	ctatctgctt	2340
tcaccgtatg	caacaaaatg	gaagagcgga	aaagcttcga	ctatgtccgc	tataaggatg	2400
acaatacgat	aaattggccg	accatctgag	acgatatgcc	gatgtcccg	gatttaccac	2460
ctgatgaaag	acgatgatta	aaggacacgg	agatgacctt	accgtcacgg	ccccattcgg	2520
gcaaatttca	gttcgaatgt	ttataacgca	ccgagcgta	gggattgctg	gatcaccttc	2580
acaggagatt	ggatagctcg	gttccctatc	ggagccggag	ccttattctt	tggagaaagg	2640
tttggcgatt	atcacggtat	agctgcgat	tcaatcagtg	tgaccagcgg	tgccacgaag	2700
ctatttatct	catagcgag	gctttccgtg	gatcttcttc	agcctagtag	ttcccacttt	2760
cagcgaatat	gccgatgctt	gccggctgca	tggcatcggt	tggattttat	ttccaagccc	2820
gaagaggctt	cttctcgata	tgtatggtct	ggctctgtaa	tccgaacaat	ccgacgggac	2880
gtgtttggaa	gcaagcg					2897

(2) INFORMATION FOR SEQ ID NO:1040

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 693 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...693

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1040

ctgcggatct	gtcgttgccg	aaagtcggtc	gatgcacatc	cgacttgctc	cggtgtagca	60
agcactcctc	aagacgttgg	atgaaatgga	aaagaccgta	tcgagcaagc	cttggcacga	120
aacggcagca	acctttcgaa	tgtggcaggg	aattaggcat	cagccgccag	actctgtata	180
ataagatgaa	acgctagggc	tgtagccctt	cttctatggg	aagacggaag	accggcagtt	240
tcggctgcat	ctgttattta	ccatcgatc	ggcggtggtg	ggtacttggg	cggcgctgca	300
ggacattatg	ccatcactgt	ttttgcagcc	ggactcggtt	tctttccgcc	ttgcggttgc	360
gtttacttta	tcggcgccat	cttcaagatc	ttccctgctc	ttgaatgcta	tcgagaatgg	420
cgattattcc	gtgcgctttt	cgaaatggga	ggcaatgtct	cgcatcgaac	attcaaccgc	480
acgcttaatc	tatcaaggag	atcctcagcc	gttctcgtga	tgaggctata	gccggcgaga	540
gtttctcgta	catgtattgg	aacagattcc	tgtcggcatc	atgatggtgc	tccggaagga	600
tatgtctatt	ctaccaatac	agtgtgtgtg	cgctcccggt	gttaccggtt	atcacacacc	660
ttcgatcagc	taaactgtgt	tcgccgacat	gcc			693

(2) INFORMATION FOR SEQ ID NO:1041

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 965 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...965

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1041

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acttcgaaat tgttatcggg tgaaggcaaa tggcgactcg aactgccctg caggctattg      60
ccacgcacgc cggcggggaa tacaactggg cgcagcagat accgtgcata catgggtcaa      120
tgagagctgtc ggacttaagc ttctgtacgc cctcgtaccg acaaaccatc gcagatttgg      180
ggatctgctt atggtgggca gccttgctca gcgaggata cttcccttac gaaagagggg      240
ggggcggttat cttctctcgc gaatggactt ggagcacttc gcttttcgta ccgatattgg      300
tacggcaggc attacgtttc tccctttgct gcacctttcg ccattccctg acgtatgaca      360
aacagcctct tacgaacggt tggggcgatt atttcgtctc tatgccgact attcgtggcg      420
gatggcacga agtgtttcgt tgcggctggt gtcggggtat gggtccagcc ttcggatcgt      480
tttgcgatga ccacgccttg gaactgacga tgcgtatcga tcccaaattc ccaatagctt      540
tctgaaaggc aatcattgat cttttcgata tttgcgagtg gattcctcgt gatcatttag      600
tccggtaagg ttgggtgaat gccaaaagaa agaggacgcc aaagagctcc aagtcctttt      660
gacagtcctt ttcgtttata ttggaaggat gtcgcttaca gctatgcgat gtccatttcc      720
ttcatgatct ctgccgtgat tccttggcat ctccgagttt gaggaataca cccgttgctc      780
gtgttagagc ggattgtcca cacctgcata accgggtttc aggtcgaagt tgcaatgatt      840
acttcggagc atcgtccacg ttcagcacgg gcataccgta taaggcgtac cctcagcatt      900
gcgagcagca gggttcatta cgtcgttggc acgattacta ccacggcacc cgtctgagcg      960
aaatc

```

(2) INFORMATION FOR SEQ ID NO:1042

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 592 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...592

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1042

```

ggcttctgct gtctgagcac ccattctttt gggagtgggt aagtagcgac ttccaatttt      60
gccatttcag catcgtttgt aggcttgatg tccgtagcta tttgaagtcg gtacgctctg      120
ccataaactt gcagataccc tcttcgtgat tacttcttga cgagccgat tgatcaggca      180
ggcaccctta ggcattttgga gaggagtctg gcattgattg attttacagt ctcaggggtc      240

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ttcggatgtg	aagcgaaact	atatacgacg	tttcgaacag	agcatcgcg	gaagaacggc	300
ctttactcct	tctttctcga	tatccgctgc	agaaacaaat	tggcgtaagc	ataaatttcc	360
atgccgaagc	cttttgcat	acgtgccacg	ttcggcgcta	cattgccgta	tgcgaggata	420
ccgagcttct	tgcccataag	tcagaaccgg	atgctccggt	gaagagattg	cgatacatga	480
atacgagcat	cccattacca	attcgggcaa	cggcattcga	gttttgcccc	ggcgatttct	540
cacgcacaca	ttgtgggctg	tagcagcagc	caantctacg	tggtcatacc	cg	592

(2) INFORMATION FOR SEQ ID NO:1043

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 634 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...634

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1043

ggtaaattgg	aatttcattc	acaatattac	acaatctgct	taaagaaaaa	agagaagaga	60
ccgcgccaac	atTTTTtata	tgtttccttg	ccaagaaaga	gagaactcta	cattcgaaat	120
ctctttgaag	acatcctggt	ctgaatttta	ggaatccgaa	ggccgtgtat	tattttttcac	180
tatatttgca	atacagaagc	tgattaggaa	ggcgaattcg	ggcgattttt	agcctgtaac	240
cggttctgat	cagttttttc	tttatttggc	atgtggtggt	gagtcgggat	acttttgtca	300
cttccatagc	gttccggcaa	gcccttacca	ctctcctccc	tcttctaatt	tccactaaaa	360
aacttgcacc	aaaaaaagttt	tcaacaacga	agcgagtttg	gaatgattcc	aaataagcat	420
ccaaaaggga	gaggcatcca	agtaaaaaag	gatagaaaac	tgtcttccca	acttcgaaat	480
tcgttttcag	agagtcgaat	aacgatttgt	atataaatga	ctttcaattt	atatataaag	540
gttttcgttt	tatatataaa	tcgttttcaa	taaatatata	gatcgtaatg	attcgatat	600
aaatcgcang	ctcgaaaagg	ccttttccga	agcc			634

(2) INFORMATION FOR SEQ ID NO:1044

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3765 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3765

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1044

gaatccanca	tctccctctg	gtcgagacag	tagtagaagg	cggtactctg	taatcaaaat	60
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gaagccatcg	ctatctatct	ctatcaataa	aggtgtccga	tcaggataac	tactccccaa	120
ctgtcagaag	cagagctaca	cggaagcgtg	atattacatt	tgccggaaaa	ttcgtctgc	180
gatctcttag	gatcgactct	ccggaagcgg	tgacatcact	tttgccaatg	ccacgatagc	240
caatgtctga	acgtcagcct	tagaggtagt	ggcgacatac	ggggcaatat	ccttcgpgca	300
ggaatgcaac	tctctcgtcg	gccggttcgg	gcgacataga	ccttcgctcg	gtcatcctca	360
gagagtggaa	gccggtatca	gcggaagcgg	agtataaaga	taaagggaca	aacagccttt	420
gccgcgctga	aatgcagcgg	agcggagacc	tcgaatgccg	taacctgtcg	gcccacaag	480
ccgacgtaag	atcagtggca	gcggagatgg	caagctggct	gttaccgaaa	agctggatac	540
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tattaggggtg	cgatgtggcc	actatctgta	cgggcatggc	tgctctatg	gctcagtgtc	1380
gctcgtagca	ggaacgaaag	gcaaacgctt	tgctttgctt	cttcccgcgt	gatgatacat	1440
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tgatagataa	aatcctcgaa	aagaatcgaa	agtagccctc	tcgttaccaa	agggggactg	1680
tatatctctc	atggcaaaga	aaaaggacga	agaatctgta	gtttttgtgg	catgccgaga	1740
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gtgcaggaga	ggtgttcgag	aagcattgca	aaaattcaaa	tcggaagaga	cgaacaatct	1860
gagagagagg	acttgccctg	gcctatagag	atcaaggaa	ttctcgattc	gatgttatcg	1920
ggcaggatga	tgccaaacgt	ttttttctg	tcgtgtgata	aatcattaca	aacgattgct	1980
ccagcaagag	gacagcgtg	gcgtagagac	gagaâaagca	atattattat	ggtcgggtccc	2040
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ccgtagtgc	gctacggtac	tgaccgaagc	cggctatgtg	ggggaagaca	ttgagatatt	2160
ctcaccagac	ttttgcaggc	gcgagactac	gatgtcaaac	aggccagaga	gggattgtct	2220
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cctcctcaag	gcgtcgcaaa	catccggagc	agaagatgat	tccggtggac	acgaggcata	2400
tctcttcgtt	tgtgccggag	ctttcgacgg	catagagaag	aaaattgctc	gcgactcaat	2460
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gcacgcggac	tacgctccat	cgtagagacg	atctgatgga	tgcatgtttc	acgatgccat	2820
caggtaagaa	gaagactttg	gtgtagacaa	agcttatgca	gaagctcatt	tgaatattga	2880
cgatttgcta	cagatcaata	atagaagtac	ccccaaagaga	atctaaccac	aaggagtgtc	2940
acccggagtg	tagtgtgaca	cctgtcaagt	gttgtattat	ggacattgtc	tggccgaaaa	3000
attacagcag	tattttggat	ttgaccgatt	caaaggcatc	aggaggctat	cataagaaat	3060
gtattagccg	aacgaaacac	ttttgtgtga	tgccctacggg	aggtgggaaa	tccctatgct	3120
accaattgcc	ggccatctca	tgaccggcac	gaccatcgta	gtctctcttc	ttatcgctct	3180
gatgagaatc	aggtggatgc	catgcgtagc	ttcagtgcca	aggatggggg	cgctacttta	3240
tgaattcttc	tttgaataag	acacagctcg	aacgtgttaa	gaagatgtac	gcgatggact	3300
taccaaactg	ttgtacgtcg	ctcccgaatc	atgacaaaag	aagaaaacat	tgcttttctg	3360
cgtgaaatag	atatttcgtt	tacgctatag	acgaagccca	tgcatatcg	gaatgggggc	3420
atgacttcag	cccgaataca	gacggattcg	tcctatcatc	aatgagatag	ggccccgatg	3480
atcatcgctt	tgacagccac	ggctaccccc	aaagtgcagc	atgatattaa	agaatcttg	3540
ggatgatgga	tgccgatgta	ttcaaatcgt	ctttcaacgt	cccaatcttt	tttatcatat	3600
acgtcctaaa	acacaggacg	tagatctgac	gtagtcaaat	acatcctatc	ccagccggga	3660
aagagcggta	ttgtcattgc	atgagtcgaa	ataaagtaac	tacttttgcc	caggttttgc	3720
aggcaatggg	atcaaagccc	ttccctatca	tgccgggactt	gacgc		3765

(2) INFORMATION FOR SEQ ID NO:1045

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 772 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...772

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1045

gtgtgacttc	cgacagaaca	gttgtgagca	atctgtacaa	ggttgctctac	tttactccgc	60
gatgtatgat	cgttgaatcc	ataacagccc	tgtcgataaa	gtgttgccac	cgatttccgac	120
atcatcttca	atgataacgt	tccccagtgc	ggaatcttgc	tgtagccttc	ggcattccgga	180
gcaaaaaccga	atccatcgct	ccgataacgg	ctcccgaatg	aatcacgcaa	cgcgaaccga	240
tggaaagcca	tcatagaccg	tcacatgggg	gtagaggatc	gtcccccttc	caacgacaca	300
ccgctaccta	cataaacatg	cggatacaag	ctacagcctg	taccagcgat	gccccttccg	360
acacgtaggc	aaaagctcct	acatagcaat	caccggcagt	atcaccgatg	gatgaacgaa	420
agccgtggaa	tcgactccct	tctttggggc	ttcatgctgt	ccaccaactg	cattagttgc	480
gccaatgctg	ataggcattg	ggaactcgta	tcagggtcgt	cttcaccgat	tcgcgcggtc	540
gaagtcctga	ttgacgagta	ctgcatcgga	ttgtgtttgg	tacaaatatg	ttcgtactta	600
gcattggcta	aaaacgagag	acagccacta	cgaccttctc	tatcttggca	aaagtcgtgc	660
agtcgcacct	tgggattgcc	ctccacgaac	cgtggaggta	gtcaagctat	ctggtgggct	720
gtaaattcca	tgtgacgggt	taattagggt	acaatggatc	ttaaaacatt	tt	772

(2) INFORMATION FOR SEQ ID NO:1046

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3447 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...3447

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1046

ggcaattggc	ataatttttt	ttgcagacaa	atccgcctct	ccaaagtctc	agaccggaaa	60
tgctctgatt	gcggagcgtg	ttttcgggaa	aagcggcgga	gaattttttc	cctgcggcgc	120
gagaattttt	cacttcccga	acaaaaagaa	aaagtctccg	cgccacgttt	ttcagagcgt	180
ggaaatagaa	aattatgcgc	gtaaaaccgt	ccttctctct	taatacgata	gcgcacgaaa	240
tgatggtctc	cacgcgaaat	gaactttggg	gagcttgatt	ccgagacaaa	taccctcatc	300
ccctgccaa	ctccatagat	gcaaaaaccg	aaagtgtgta	acttggttaag	taatcacggc	360
cgacaccggg	gtctgcccgc	ggtactaagg	aacattccaa	tgcaattcaa	ttatgatgtc	420
atcgtgggtg	gtgcggggca	tcgggtgag	aagcggctgc	ggctgcggcc	aagctcgggt	480
cgcaggattt	ctcatcacgc	cggacatgaa	caaaaatagc	caaatagagc	gcaatccggg	540
gtcggaggaa	tagctaaggg	ccagatagtc	agggagatag	acgccttagg	ggacgaatgg	600
gtatcgtcac	ggatgctacg	gccatccagt	ttcgtatctc	aatcggagca	aaggccctgc	660

catgtggagt	ccgcgcgctc	agagcgccgc	atgcgcttca	tggaagcgtg	gcgcgatata	720
gtggagcacg	agcctatctg	tacatgtggc	aggacagtgt	acgctgcctc	tctattcgtc	780
aggggcccgtc	gcgggagtcg	tgacggctct	cggggtagag	tttcaggctc	gtacgtgggtg	840
ctgactacag	gcactttcct	cggagggtgtc	atgcacttcg	ggagcgtatg	atcgaaggag	900
gacgaatagc	cgaaccgggt	ttccacggca	tacggagcag	cttcgtgatc	tgggcttcag	960
aaccgacaga	atgaagacgg	gactccggca	cgaatcgacg	gccggagcat	cgatttcagt	1020
ctgaccacaa	gcagtcggga	gaagaggatc	accaccgttt	ctcctatatg	gatacgcccg	1080
aagggtgcta	cgccaaagga	gttgctacgc	actctacacc	aatcccgggtg	tcatgagata	1140
ctaagcaaag	ggttggatcg	ctccccctg	tacaacgaca	gatccaaagc	atcggccctc	1200
gatactgccc	cagcatagag	accaaactcg	caccttcgcc	gacaaggaga	tgcaccaact	1260
gtttctcgaa	ccggaggaga	gaccagtaac	gagttttacc	tcaatggctt	ctcctcgtct	1320
ttgccttgga	gattcagctc	gaagccctga	aagccattcc	ggctcttcgc	cagtgcacat	1380
ctatcgtccg	gggtatgcca	tcgaatacga	cttcttcgat	ccacacaatt	aagacatacg	1440
cttgaaacca	agccgggtgaa	agggctgttc	tcgcccgtca	gatcaatggc	acgaccggct	1500
atgaggaggc	cgccggacag	gactgatagc	cggcatacaat	gctcacctgc	attggccatg	1560
gcgcaggcag	ttcacactcg	gacgggatga	ggcttacata	ggggtactga	tcgatgattg	1620
gtgagcaaa	gcgtggacga	gccctaccgc	attgtttaca	tcccgaccga	atatcgcatc	1680
ttgctacgtc	aggacgatgc	cgacatgagg	ctcaccggaa	ggcggaaagcg	atcgggctgg	1740
cagacagcag	acgcaggaga	ttgcccggaga	aaagcaagta	tttcgcgata	agctgatcga	1800
ctttacgcac	aagtttccct	caaacccgat	ctgatcaaac	cgcatctgga	gtcggccggc	1860
cacttcctct	caagcaagga	atcaaaactgt	acgacctgct	gctccgtcct	caataggaat	1920
gaatgaagtc	tggtcgatgg	tgccctctct	ccaaagaatc	tggaagagat	cccggcatcc	1980
agacgagagg	aaatcgtgga	agctgcagaa	tcttgatcaa	atacgacggc	tatatcaaaa	2040
gagaaagagc	cttgcccgca	agatcaacag	actcgaaagt	atccgacttc	cgcagcatgt	2100
agattattgc	agatgcagtc	cctctccacc	gaagcacgcc	aaaaactgac	gagcatcggc	2160
cggaaaccat	cgcgcaagca	tctcgaatac	cgggagtctc	tcccccgacg	taagcatcct	2220
tctcgtactc	tgcggaagat	aacgtttcac	gtgaacaaaa	tatcgaaccg	aatgatgacc	2280
cccgaacga	tgaacatcat	cctcccaccc	tgcgcgaaaa	accgggttgc	taccagtact	2340
tcgatgaaga	tggaaggtaa	tctatgtagg	caaggccaaa	aaccttcggc	gcagggtcag	2400
tcgtattttt	acaaggagca	cgcagacagg	aaaacccgca	tactggtcag	cagatcagga	2460
gcatcaaaata	catagttgtg	gacagcgaag	gggatgcccg	ctgctcgaaa	actcactgat	2520
caaagagtat	caacctcggt	ataatgtctc	ctcaagatg	ggaagacata	ccccagcata	2580
gtgatcaaac	gggaaccttc	ccacgtatat	tgcgcacacg	ggacatcaaa	aaggacggat	2640
ccgaatcttc	ggccccctatc	cgggcgcact	cattgccaaa	gggatgctcc	gcctttgaaa	2700
gagatctatc	cgatccgtac	ctgcaaaactg	gatctgagag	aggaaaaatc	cgacaaggac	2760
ggtaccgcgt	ctgcctgcag	tatcacatca	agaatgcaaa	ggccccctgca	tcggcaatca	2820
aacttcgaac	gagtacgaaa	gcatgtatcg	gaaatacgcg	atctgctccg	aggcaacttg	2880
cacaggcttg	tcgcatgtat	cgcgacagga	tgcaggatata	cagcgaagga	ctgcgcttcg	2940
agaggcacag	atatgcaagg	agagaataga	gcttcttgag	cgatacgaac	caagcacacg	3000
gtcgtaccgc	gtaatataga	caacgtatag	gtttctctta	cgacgaagac	gagcacacgg	3060
cctatatcaa	ctacatgcac	atagagccgg	agggatcaat	cgtgtgtaca	cettggagta	3120
cagaaagcag	atagagaatc	gaaagaagaa	cttcttgcag	cggcgataac	agagctgaga	3180
caaagttcga	aagcaacgct	cacgaaatcg	ttttgccgtt	cgacaccggg	tggcaacggg	3240
agagagcatc	acgactacga	tcccccgacg	tggagacaaa	cggaactgct	ggaattatcc	3300
gagaagaacg	tagctcaata	caagctcgac	aactcaaacg	tgccgagaag	ctcaatcccg	3360
agcaacgcgc	cctacatatc	gccacgggat	ccaaaaggat	ttgcacttgg	atcgtccgcc	3420
gaaacatatc	aatgcttcga	caactcg				3447

(2) INFORMATION FOR SEQ ID NO:1047

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 481 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature

(B) LOCATION 1...481

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1047

gagaggggaaa	agtgctcaga	acaagtaaaa	aatgaccgt	catagctatc	atgaatgaag	60
aacggcaacc	tgtgttctct	ttcgtttttt	gatgagtaaa	ggtaaaagca	aatctttcg	120
atatgggtca	ttttcgaagc	tgaaaaaacg	gaatattcac	cgaaaaatat	gcgcaaaaaa	180
agttttcaac	aacgaaaagt	gtttggaatg	attccaaata	agcacttctg	agagatcgaa	240
attcgggtaa	agtacgtaac	atgacagcct	ttttcagatc	gaaaagctct	ttttttagtt	300
cgatgaacaa	tctatatatt	aatcattttt	gatttatata	taatcgtttt	cattttgtat	360
ataaatgatt	ttcaataaat	atatagatcg	aatgatttg	tatataaatc	acaacttcct	420
aaaggctttt	tcttgaggga	taacagaggc	accatcggt	tttctcttga	atcgacgggtg	480
c						481

(2) INFORMATION FOR SEQ ID NO:1048

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 741 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...741

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1048

ggcgatgagt	tcgacttctc	cgtattggca	ctttatgatg	aaaaacgcta	tcagttggga	60
ggaggcgtct	ataatgtgca	gaaggaaaag	ttcaaactaa	tgttttctat	cdgagtgata	120
gtgcaggcgt	ctaccaacca	tatatcatga	aggcaagatt	aaggagacgt	tgcttctgcg	180
cgtgttgggc	atggacgact	ggatgccaaa	caagagcctt	accctgatgg	tacgtacgac	240
tttgtgatgg	ctatacgatc	ctccctcaga	aaggagttgt	gacccctcct	accgggagcc	300
gttcggaaaag	acccttgccg	atgcgttttg	cgatcctgta	ttgcgaaaaa	gtactgcttc	360
caagagctat	acgatacaac	ggcagtggct	gccagcaagt	ggcagagaag	aacaaattta	420
tcttccgagg	cgaatacaaa	gttctccggg	cggagacatt	tctttgggag	ctatcaacgt	480
aacacccgga	ccgtcgtagt	gacggccggc	ggtgtcaagc	tgacggagaa	tgtcgattaa	540
cggtagacta	cctctccggc	aacgtatcga	tcatcaatga	agcgattcct	cttcgggaac	600
tcccatcaat	gtgtcgctcg	agaaccgagg	gctgatgata	tgacgcgcaa	aacgatgttc	660
ggtatagatc	tgaactacaa	cttttcaaag	acttcaccct	cggcgggnacc	ttcatgcacc	720
tgagcgaaat	gccgcgacga	c				741

(2) INFORMATION FOR SEQ ID NO:1049

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 639 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
(B) LOCATION 1...639

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1049

tcacatctctt	ccaaatcatc	gtcaacctgc	gcgacagcct	tcgcaatatt	ccaaagagag	60
ctttcttgtc	cttacctcat	tgggagccac	tcatgctcac	tgatgcgtca	tctggctcta	120
ccggccatta	ctcccgaagc	actctccac	tacgagtggc	cattgggaca	gccatatcag	180
tactcttctg	gacagaacat	acgggacgaa	taaagggcat	gggattcttc	attgtcgatg	240
catggtgcgt	atcagctata	cggagatgta	cgtgggcac	gtggttttag	ggatgcaggt	300
ttttctcttt	ttttgctcgt	ggatggtctt	gagaccgcac	tatcagatgg	aggaacagtt	360
agccatacaa	tcaaagaaat	catcattcaa	caaacaataa	cgatcaagaa	atgaaagtaa	420
aacatctatt	agctgcaccc	tgatgatgct	aggaacaggg	aatatttgcg	cccaaaagtc	480
cgcaaacagt	ttttcaatgc	aatcaaagaa	cgggttagcc	tcagtgggta	tgcgcaagcg	540
ggttttcttc	ttgtggcttc	cctacggcga	gttccgaaaa	nggagaacac	acacattcga	600
tgtaaagcgt	atcaaccttc	gtgccatgtc	gcacacga			639

(2) INFORMATION FOR SEQ ID NO:1050

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1418 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
(B) LOCATION 1...1418

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1050

ttgagtgcctn	cggtaccgat	agacgaattg	aactcattta	tcggctttgt	gatgagttag	60
gacttgccgg	aagaggatcg	ggattttntg	cgtaccatca	gcacaaagct	tttcaccgtc	120
ggatccctat	ctggccacaa	atcaggaagc	agagagctga	tggtggagag	tcgagtgcac	180
cccgaacga	tagaactgtg	gagcaggaaa	tagatcgctt	ggacaatgcc	attcccaaga	240
tgacgctttc	atcttgccgg	ggggtagccg	ttctgcctct	ttggcgcatg	tttgcgtagc	300
gtatgccggc	gagccgaacg	tcatatatac	cgcttgagtg	aagggcgctg	gtagaggagc	360
ctgtgatgcg	ctatatcaat	cgtctgagcg	atatttcttt	gctctggctc	gaaaagaagt	420
ttggcgtagc	accggagggtg	aattattttg	gataagacct	gcgattgaga	aaaggctgta	480
gaatcaattc	ggggcttaat	aaagaaggag	cgagaaaagg	cttcggatat	taggttttagc	540
agaaaaatct	ttttttatct	ttgctgcttt	catcgaccga	ttatatcaaa	taaaaacaaa	600
tgattgcttt	ccaagccctg	caagccatct	ctccgatgat	ggccgggtatc	gcaacaaagt	660
agaagtactt	agtcgctatt	tttcagagga	tctctaattc	gctatcggtg	aaaagtggag	720
gtggagtatt	tcacctctct	tgcaatgaat	tgcttctcgt	gaaagatgtg	tgccctccat	780
ctttgaggaa	gagttgcgcc	gtatatacca	agacttttagc	gagaaggatg	ccgacgtgta	840
aaggaaatag	aggcggtaac	gaatcatgac	gtcaaggctg	tgagtatttc	ctcaaagagc	900
ggttcgaggc	catggggata	cgagatgcca	agaatttata	catttcggtc	tgacctcgca	960
ggatgtaaac	aatacggctt	ccgatgatg	atacgcgagg	caatgaccga	ggtttacttg	1020
cccgttttaa	ggagctgggtg	gagcagcttc	atgcttatgc	ccttcagtgg	aaagatgtcc	1080
gatgctggcc	aaaacgcagt	gacagccggc	gtcgccact	cgcttagaaa	ggaaatagaa	1140
gtattcgctc	atcgcttgcg	caagcagatc	gacttggtgt	ggaagtacct	cattcagcca	1200
aattcggtgg	tgctacgggc	aatttaaatgc	gcacatgtgt	gcttatcctg	atcatgactg	1260
gagcagattt	cggcgctcgtg	ttgttaacttc	tctcgggctt	gaacgggaag	aactcactac	1320
acaatatcca	actacgacaa	acatggcagc	cttattttga	tgctgtgctg	cgatcaattg	1380
tgatactgat	cgacctctgc	cgtgaatttt	ctggcaag			1418

(2) INFORMATION FOR SEQ ID NO:1051

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 575 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...575

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1051

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tccaatcgta ttccgcttca tcaaacgggt tggcttgggc gcgaattaat tcttttcatg      60
gcatgtgggg agatcttact ccccataata agcccggaag gtcggtagtt ttctctttcc      120
cgaaaatact atccccatga atcatactgg tacatggaag ggagcatagg tctggagaat      180
atcttccggc tcttgccatc gaatacttcc gacgcttcac ccaattacaa acgactccga      240
ataaagggga gtccgtgctc gcttccagat cactttctga cctctaaagg aaagggaaat      300
gccgaaactt ttcgttctga catttcttcc tcttcgaagc gatcttaata gaatcagagc      360
ttgatgaagc gttcggccgg tgtgctgctt tggtcagag tttgatcaca taggccccgg      420
cgttcaaaac cttcacgccg acatgcgagt attctccata gagagcacca aacgacctga      480
aaaatcaaat tccggacacc gaagtcacct tcatgcttaa tattcagtag atccttcacg      540
gattggggta aaccccgga tcagaagaaa aatag                                     575

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(2) INFORMATION FOR SEQ ID NO:1052

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 966 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...966

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1052

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gcgatagaaa tgttcgtcac ctgctaccc gttccgcatg ttgtgggcaa atgatcagtt      60
ctttctcttt gataagaggt attttgcggg cgaatgcacg agtacatcat ttaatccttt      120
cagaacgaaa agtttagaga tgtcaatacc gtacctctc cgataccgat tacgcggtcg      180
aactggatat tacggagtct gccaaagtgt tattcatcat ttcgtcagaa ggctcgctt      240
gcccaatttc tctgcataa caaaatggca ggggagctgg catgccttca tatagggttca      300
tagatgaact cgttggtaat taccaagtcg cgttctccaa gacgaattcc ttggcaaatt      360
ctgcaaaagt gtcaaagtga tgtgttacac tctgagtttg aaaagtgtgca taatagtatt      420
attggttttt ggaataatcc taactttttt tcttctcttc ttatccgaaa cgtttgcgga      480

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gatgtttcgt	agttcctctc	tgaatccgg	gtgggctatg	gcaataagag	cttctgctcc	540
tggcgcaaac	tctttccttt	gagttgtgct	ataccgtatt	cggttacacg	taatcgactt	600
cgttgcggag	ggttggttaca	gcagctccct	ctgcaatata	ggtacaattc	gagatgcagt	660
accgtttttg	gctgttgagg	gaattgcatg	atgctttttg	cgttttttaga	ccatgctgct	720
ccacgaacat	aatctcttga	ccgccgggtc	cgctgaattg	cttgcttctc	atacattcgg	780
acacacttgt	cccataagat	cgatttcgat	acagctattg	atgctgacca	tatatcattt	840
tgagcgatta	ctcgcggatc	attgacgtaa	tctaccgat	aagttctaca	tcgggatttt	900
tgtcgatgaa	atgatatacg	tcttcgcttc	cttaagaag	ttgcgaccat	ctttccgggg	960
tgaaga						966

(2) INFORMATION FOR SEQ ID NO:1053

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 734 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...734

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1053

gggcttccat	ttgggcatag	tctgtatcac	gcggagggtc	tctttgtcag	tgcaggggtca	60
atacccttaa	caacagttgc	ttgtgtcaca	gaaccatctt	ttcgaccacg	aaacgaacga	120
ttaccttacc	ttggatgccc	atttcggagc	ctgctcggga	tagaccaa	ttttactaag	180
ccatttagag	agagcatata	accacccggg	aactctgccg	gactttctac	cacttcgtgg	240
atttttctc	ttcttcctca	actttaacgg	gggcaacggg	cgcaggcggg	ggcacgggtt	300
gctctcatcg	acagagacca	aagcgatttt	ctccactttc	tgggtgttatc	taaccacctta	360
aattcttccg	gcagctgtac	ctcctgttgc	tgggttgctc	cggctcgggc	tgtctcgggt	420
cgggtcgtt	ttcttcgagc	agacagtttc	ctccatgtcg	gcaatatcca	ctttatcgcg	480
tgtataggcc	ctatcttata	gtaagtacga	tattccaaag	ctacatacac	gatcgcgagg	540
ctacgacaag	ccccaaaagg	aagttcaaac	cttttccctt	ctccaagtgg	ccttaggcga	600
tttcttgatt	tccatatctg	atagtattgn	ttttgattct	tgctttgggg	caaaaataca	660
aagttttttc	atncccaatt	cgttttggtg	gaaaaaatca	ggcgtatggg	gcaaaattgc	720
aggctgcaaa	aatc					734

(2) INFORMATION FOR SEQ ID NO:1054

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 765 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...765

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1054

agcggattgt	ccttttatag	atgtacgata	gtaaaaactt	ggaaataaacc	actcgatcta	60
gcccatacta	agaagaaaga	gcctcatagg	atcggcgagac	gatcccatga	ggccccaac	120
cggatatcgg	caacggctaa	aagcgggtacc	tatgcccacg	aagaagtcac	gattataagc	180
gtattcggtta	tttccttttc	tcttagagcg	gtcgtcgaag	aggattgcct	attgtcgttc	240
agtcgggaat	atcagaacct	ccacctgaca	caatatccac	aaatccatgt	tcatgcctat	300
ctgtatataa	taacgcttat	agtggaaatgc	ggctattatg	tttccccgat	gtcccagcgg	360
atatttgttg	ggccaccaag	cgttgggcca	aaaactctgt	gctgtagttg	ttcggcttcc	420
atccttccaa	cttctgccga	ttgtaccata	tataccgtat	gcaaggaaag	gacccgcttc	480
gatcgaaacc	ccatgtcatt	catcaggtcg	aaccgcatgc	cggcattgat	cggcagttga	540
gatagtgcga	gcgagtgga	accatcgtaa	tataggtacc	aggaaccatt	cgggtatatac	600
ccattcgggt	ttggagccct	tcacgtgata	gttcagaccg	gagccaagta	gaatcctctt	660
gatccggtca	tgaattcggc	agcggcccga	cccgcaggcc	gacattcatt	tggtgtccca	720
cacatatccg	tctctttcat	gctctgattg	ctgcctacga	agttg		765

(2) INFORMATION FOR SEQ ID NO:1055

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 573 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...573

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1055

ggccgtaacc	tgtttagaag	atctttatgg	acttgatagc	catattcgaa	catcaactgt	60
ccggcgtag	caatgatagg	caaagattag	acaatgtgaa	gacaaaacgg	aacgacgaga	120
gaagaatacg	aatctcctat	ctgtyagaa	tagcggatgt	accgtgggtc	tgctttcggc	180
taatctcccc	ttggcaatgc	caagcatcca	ttgacaaaag	tgtatgcgac	actgtgactg	240
aaggtaagcc	ttcgaaagga	gaccatccgc	agaggctaag	tatattatcc	gcagtacggt	300
gtgaggagat	gacggatcca	caagcaccag	atcggcatag	tagccggagc	aatgtatcct	360
ctcttctcta	tggcgaagag	agtggccggt	attgagccgt	tttgcttact	atcttctcga	420
tgctgaatat	gccttgattg	cgagttcgag	caaggcgagc	aaggagtgtc	gcacgagtgg	480
cccgcgggat	caacctgcaa	gcaactgcct	tctttttctc	ttaagcagat	gccgggcatg	540
atccgtagct	ataatatcga	taccgttcca	ttg			573

(2) INFORMATION FOR SEQ ID NO:1056

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 915 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...915

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1056

tcgatacttt	tgtcagaaaa	aatttcggcc	gagatccgc	tccgtttgac	acatcggtg	60
cttgttcgta	caaagattcg	tattcggact	cctgaagtca	cggatgaggg	aaacgaactc	120
accaagacgg	cgtcgggctg	tagcactaga	tccggaagac	ccttctgcga	ttcggacagt	180
acgtcccaca	acgaacagaa	gaagccgtgg	ctatctcgtt	aagacgagac	agagtgggtat	240
ctcctttcct	cgttgggat	aattgattac	acgcctgagt	gcttcgtcat	cattggattt	300
acgattagac	gaaaataggc	caggacgtcc	ttgatctctt	ttccgaatag	aacgaaagcc	360
caccgtatat	acgaaaagg	atattgtgtt	tggaagtgtc	tctcgaaaa	ctcggtctg	420
cgcattagt	cgttacagaa	tgcgaaatcg	gaataaggac	aatgctcttg	catgcgtcgc	480
tgcagcatcg	atccgctacc	gtataagcct	ccaaataccc	cgacagacaa	cccgtcaggg	540
aatacgtca	cctacttggt	tgttcgaaaa	aacttgcttg	gggattcgcc	ctcattgtga	600
gcaatcaagc	tattggcagc	attgacgatg	ctctgtgact	ccgatagttc	tctcaagtt	660
tgaaaagt	gctcccgggg	aacgacttga	aaagcccaga	gtgtttttcc	acttgggctc	720
cacggaaaact	gtataactct	gagcatcctc	ccccacgacg	aataccttgc	ctttctcccc	780
catcactgcc	tggcaatcaa	atactgtgca	aagttgggtat	cctgatattc	cgtgatcaat	840
aaataatcga	tgcggtcacg	gtaggtctgc	aagacatccg	gaaatcacga	aaaaggacat	900
tgttttgaaa	agcag					915

(2) INFORMATION FOR SEQ ID NO:1057

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1211 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1211

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1057

taggatgggc	ttttgagaaa	catttttaggg	atttatggga	aaaaaaatca	tagatgcctt	60
cacatcatat	acaagacctt	gtgttatagt	tgtagttagag	gctctttttac	tggtaaatct	120
ataatatcca	atcatctatc	aaataaaaatc	aatttttcagg	gggtgctttcc	actgatattg	180
ttcggaaattt	ttttcgatta	gcactagaga	tagaaaaact	tatcaaacat	ccacgtatag	240
aatgggtgata	gtgaattaaa	tattcaaaaa	aataatgttt	cgaatatgat	tgaaagatgc	300
tggagatttta	tcgaagcagg	agagagaaaa	ttattattga	gggatgcac	tcacagaaga	360
ttttttgaga	aatataaaca	aacaagattg	tctataatag	gattagacaa	caaaagggat	420
ataaatgac	ggctggattt	gaaatgaaga	ctaccctgtga	ggaagtctct	aaaaaaacag	480
aagatgaaaa	aaacgaatta	atgaaataca	ttatgggaatt	atcgagtgtc	gtaaaagaac	540
aattttaagg	tagttgaatt	tcaagatatt	gaagatgcaa	aggataaggt	gaacatctgg	600
tagaagaatt	tttcaactcaa	aggagtaaaa	ggtagcgtat	gagtagtcga	aaaggaactg	660
tccattat	tgtgtaaacy	ataattgggt	tgagatttag	cactcgacta	aatctcgtat	720
ctattttcaa	atatacaata	aattgattca	tagcccaatc	ccgggtttttt	tttatcgga	780
ttgtcacttc	ttttctatct	cttgacagagc	taaccaaaaca	gacttgcgaa	gagatcatct	840
gtagggagcg	acatcttttt	ttcatgtatt	tgcgaaat	ccattgagat	tttcaatcag	900
attgatcgtg	taaaaatcgt	tcatctctac	aagaaatcaa	agaaagccat	taaatcgtcc	960
taattacgat	gccaaactctg	accgcatgtc	tatactttga	acccat	gctcgaagt	1020
agataatgcg	ataccgcttg	ttctcgggtt	acggaagtat	atatttccct	catgtcagcg	1080

taacatcctt	catatccttc	caaaaccaca	tacttgcagg	aattgcgatc	tgatgcacaa	1140
cacatatctg	gtggtggaat	ggggaaaacc	gttttatgat	gtatgtgaag	tcattgagat	1200
tatccgttat	t					1211

(2) INFORMATION FOR SEQ ID NO:1058

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2430 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2430

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1058

cactattctg	catgaacttc	acttgaacag	cttgtactga	tattataagt	gatcagttta	60
cttacaaaga	cacgacatag	agtgttcaga	atatatcgca	agatggtcga	cataagacct	120
cccgtctgac	tcacgagact	aaaacaagta	ctaacaaagt	tttgttctta	aactcttcaa	180
acaaactctc	tgcagctaac	tatccttcgg	gataactaaa	aaagaagcga	aaggagtagt	240
atttagtact	cttaccggct	tccctatagc	aaaggaaagc	atTTTTTct	tacaaaatta	300
attctaaccat	tattccacca	tcttctacgt	atTTTatagc	agaaagcgaa	caaaaaccgc	360
actactcaat	aaaaaatacg	cgatattgac	cccgcgagag	atgtagtcat	gaactacact	420
caatgatact	tctcaggaaa	tccattttgc	tccaccagtt	atTCaggcaa	aatggaatta	480
ggccgatctc	gattcggatt	cctattttta	agcatttcacg	agattgtcgc	cggcaggcgg	540
gcatctctcc	atctaatacg	aatctcattt	ctatatagct	gtctgttgac	attcaatatc	600
atctgctttt	ttgctctgct	tagcaataga	aaacgtgcac	cggttcccaa	acatacgcg	660
tgaacgagag	cagcatagcc	ttcttacttc	ttttctcctt	ttacattgag	cTTTTgggg	720
cgcaaaaggta	ataatagaaa	ggtaattcca	atcgtctatt	aaattttaat	tcaaagggta	780
ccgatagttt	acgcgccgaa	atTTTctcgt	ttacgacgcc	tgaagggtg	gcggagattt	840
TTTTTgtttt	ggttcgggaa	gcaaaaaatt	tacgcgcgag	aagaaaaaaa	tctcgtctca	900
catttgcagg	aaacacgcac	ccgcaatcga	agattttcgg	tgcgtatttc	tgagacagca	960
ggttattgac	cgggacatcg	agcaatggcc	aaaccttatg	atTTctatat	cgtttggaaa	1020
ctgtcctaca	tcacgtcttt	accatacatc	caaggcatac	catcttagag	ctgccaccgt	1080
ctatcccgcac	accgctctcg	ttcgtttctt	cattatgcgt	ttttcatttt	cgaccatatg	1140
atttctgtgt	aatatatattt	ccacaggaaa	ttgtttctat	gtttgcaccg	gaaaaacaaa	1200
caaaaaacaga	aatcaaatat	gagatcgtaa	tgcgtagcgg	agtcgccgga	ggagctacag	1260
cagcagccag	actaggagaa	tagacgaaaa	agcagaaatc	atcttgttcg	agaaaggaca	1320
gaaatatcgt	atgccaaactg	cggcctgccg	tattatatag	gtggggtaat	caagagagag	1380
aaaatctttt	cgtgcagaca	cccgaaaaaat	tcggccgact	gtgaacttgg	atgttcgggt	1440
acagagttag	gtgctgtcca	tcgatcgctc	gacaaacaga	taagagtgcg	cgaagccaat	1500
ggtagagaat	atagttagcc	tatgacaaat	tgctgctttc	ccccggagcc	ttgccttttg	1560
tcctctccatg	ccgggggtag	atagcccggg	agtattcacg	ctacgcaacg	tagaggaacg	1620
gatgccatta	aaagtatttt	ggacacccac	aaggtgaaac	gtgccacgtg	gtgggagggtg	1680
gatttatcgg	cttggaatatg	gccgagaatc	tacatcccga	ggcattgctg	tcaatgtcat	1740
cgagatggct	ccacaggtaa	tggcccgggtg	gatttctega	tggcaacgat	cgttcatgcc	1800
cacctgcaag	aaaagggtatt	ggtctctatc	tggycaaagc	ggtgaaaagt	attgaaaaac	1860
gggagaagta	ttgactgctt	cgcttgactc	gggcgaaaaa	atcgaggccg	actcatcctt	1920
ctgtctatcg	gagtgcgtcc	gaatacgaag	ctggcagctg	tgcacagttg	gctatcggac	1980
cggcacgcgg	aatccgagtg	aatgaatact	gcagacatcc	gatccggaca	tctatgccat	2040
cggagacgcc	atcgaatacc	acacctctct	accggaaaagc	cgtggaccaaa	tttcttgcca	2100
gggcccggcaa	tcggcaagggt	cgcatcgtag	cggataatat	gcattggacaa	acattgggag	2160
ttatgaagga	gccataggaa	cagctattgc	caagattttc	gatctacggg	tgcagctaca	2220
ggtttgccgg	caaaggctct	caagcgcgaa	ggcctcccta	tgaagtcagt	acggtacagc	2280
ccaacagcca	cgcgggctat	tatccaatgc	ctaccgcgtt	aegcttaaaa	tcaccttcca	2340
cccagagagc	ggatgctcta	cgggtgctcag	tgtgtaggca	tagaaggcgt	ggacaagcga	2400

aagactccat cgctcaaata atcaagcgca

2430

(2) INFORMATION FOR SEQ ID NO:1059

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2075 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2075

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1059

tcggagagag	acgtttttcc	ttcgaaaaga	taactgccat	ccccaaaaac	ttaaagggga	60
gtttttcttc	atcgtaactc	tccgtaaatc	cgccgacgtc	tcttcccaat	atgtcctcca	120
ttgtgatcag	tccgcaagtg	ccaccgactc	atccacaacg	atggagacat	gcaccttatt	180
ggctctgaac	tccctggcaa	atcatctatg	cgcttggttt	cggggacaaa	atatgcttta	240
cgaatagagg	atgccagtcg	aattcatcgc	ctttatccat	gtgtgggatt	agattttgat	300
gtaaatcacc	cttttgatat	tgtcttctga	ccccctctga	acggaagtct	ggaataaccc	360
gacgaaacaa	cgaagtcaag	catcttacga	aaggccagct	cagatccaca	tccacaatat	420
cgatacgagg	aaccatgatt	tgcaggctgt	cttattatag	aatttgatga	tttcgttaat	480
cattttcttc	cctccggctc	tccctccgta	gtgggtgagg	ctaccgcttt	cgagagctct	540
ccacggacat	atcgtaattc	ttcttgctga	tacctctggt	aacgatgcgg	tacttttgac	600
cagcaatttt	gaaaacgggtg	acaatatctt	atagatacgg	acatagctgc	agcagaaaag	660
cgcgagtatt	gcagcggatt	cttccggcat	acactttcgg	cagaatctct	ccgaacagca	720
aaagaacagt	ggtcagagta	tgcgtctggat	cagaaatcca	atgatcggag	aagagaaaac	780
gaattctgct	cgatggcata	attggaaaag	ataacgatgg	ctacattaat	cacttattcc	840
cgatcagaat	agttagtaat	agctgattcg	aattgtctaa	taattggaaa	gcgcgatgtc	900
ggaagagtga	ttccggttcg	ggatgttctg	cgatcgatcg	gctttagtga	aaaataagcc	960
acctcacagg	aggacataaa	gccgaacagc	aaagaagaag	caggtcgata	atgaaagcca	1020
ctatggctgt	gcaccgatag	gattgacccg	aagcccttca	aaaaaatcag	taataagggt	1080
aagtcacaaa	taaatctgat	ttgggttaga	acggaagggtc	ggacggagtt	ccgagctttc	1140
ttcttttgcc	gtatcacgga	cggatgaaga	agacgcaggg	gcgtcgtatc	ttgagtcgat	1200
gaaggtgtct	gtgaagttct	gctttgtctc	gattggagga	accgctttca	aaaaagttga	1260
ttttctcgcc	aaggtttccg	tcacttgccg	acgaacccct	gtattgtcta	catacgtgcg	1320
gtacggattt	ttccttcgac	atataggaga	ctccctttct	tgatccactt	ctggcaaaaa	1380
tggccaactc	gcgataggca	accacattat	gccattccgt	tgtctccggca	cttcagtgcc	1440
attggccagc	ttgtagcctc	gctcggaagt	gccagcgaaa	agtttgcgac	agccgaattg	1500
ctatcgaaat	accgaatctg	ggatcccttg	ccgtacggcc	tatcaagatg	attttattca	1560
gagacatggc	aattttctaac	caagtgaacg	aaacaaaaat	aggaaatatg	attcgttaag	1620
ccaaatgctg	ccctgtctgc	aacttgtgca	tatccgatgg	gacggcgaaac	gcagcaagcc	1680
aatcaactgt	tcacgaagtt	tccggcgaga	ataactctgc	gcacggccaa	acgtactttc	1740
cttaccggac	gaggcatacc	aaacgacgca	ccagctcttt	ctgcgaaggt	gataattgct	1800
ctacggtcag	ttgggaataa	acgtaattcc	ctgaccgctc	tccaccaatc	gcatgaatgc	1860
ttcatgctac	cgccggaata	tgccgtctga	cgttcatgca	acccttcac	tacaaaaacg	1920
aacgagctga	tctctgaagc	aatgaccctt	cgccaacacg	cagagacgat	gtgggttgac	1980
ctcggtagt	cgaattacat	cttggtcgat	agcggctcac	agcgcgatac	ataccccaga	2040
aactcctcat	aatagagcag	tcgtcttcaa	gacct			2075

(2) INFORMATION FOR SEQ ID NO:1060

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 687 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...687

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1060

tctgtcaagc	tccttccctg	atcaactatc	tgcgaaagtc	gcataattat	ttctcgaatt	60
tcgtctgccc	tttgctccgg	tcaaagacct	tttggccgac	tgtccaactg	tccatccgaa	120
gtgggtattcg	tcattcgtca	attctatatg	agtatgtgga	ggaagtacgc	aagcacatga	180
gctacgaaga	gaaaacgttt	tcccttatgt	ggaaaaactt	ttgggaggaa	agttggacaa	240
acgttgcaact	acagaatcga	tatatccagc	aaacgccacg	atcagataga	gctgagattt	300
ccgaacttaa	gaacctgctg	atcaaatact	acccgacatc	gagggctacg	aactcaacag	360
cgttctgcac	gacatattct	cctcgggaag	cgtttgtcag	cacacaactt	tgtcgaagac	420
catcttttcg	tgcctttgat	tgtaaaatag	aaaaggaaaa	cggattatga	atatcatcac	480
actcaaggtg	cgatagtggg	accgctacct	atgattcgtg	cagggctgga	agctctacta	540
agaaaatcac	cggctacaag	atacaattca	tagatgcacc	cgccgatatg	gttgggtaga	600
tgtaatctcc	ttttattgtc	ccgatgtcgt	tttcatgatc	cactcgtatc	gggactcacc	660
cgaaacgaat	ccgacaaggc	atgtccc				687

(2) INFORMATION FOR SEQ ID NO:1061

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 552 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...552

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1061

caggacctgc	caaaagaaaa	gtttgccggc	aaattatgct	cggcaccatc	tctcggaaaag	60
aagaataggt	agtagcaagc	ctatagtggg	tggaggagac	tatatactga	tggaaagagg	120
tcgcctattg	ctaccgattt	ctgatattat	tccatttttc	ggttgctctg	ataggaaaagc	180
aaatgtccct	tttgtgaccg	gtcgaaagta	aaagatccga	tgccacaatg	gaagcaccat	240
cagcttgaat	agctgtgcga	ggaaaagcga	ttcgaaggca	cgataggaga	gttcataccg	300
gtgagttcgc	taagctgcga	ataagaggct	gttacgtagc	gttggttaatg	gcatcagtta	360
ctgtcatacc	ttcgggtgta	atccatgcac	gcctgccact	acgagaggaa	aaggcatggc	420
aacgaggcgg	ataccacgat	tcgaacgagg	gtcaattcga	tacgtgtatt	cacctccttt	480
tgatcgaatc	gagaatagct	ttgcccgttg	cactgaatct	gtcctgtcga	gggtagtggc	540
cttgatattg	gc					552

(2) INFORMATION FOR SEQ ID NO:1062

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 374 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...374

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1062

ctcaaagggtg	aggggagaat	taccgagatc	aatgtagccg	aaactctcaa	gatgtacgtc	60
gtgccctttt	ggatgccgac	gtgaactatg	tcgttgccag	cagtttacgg	acttggtgaa	120
ggaaaaagcc	atcggccaaa	acgtgctacc	tccgtccgtc	cgggcgaact	gatggtgaag	180
atcgttcatg	acgaatggct	gctctgatgg	gcggacattc	tgtggatatt	aatctcaaag	240
gcagtcggca	gtaatcctga	tgtccggatt	gcaagggttcg	ggtaagacca	cctttccggc	300
aaactggcca	atatgtctca	gtccaagcag	ggcaaacgac	ctcgctcggt	gcctgcgacg	360
tgtatcgccc	tgcg					374

(2) INFORMATION FOR SEQ ID NO:1063

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1165 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1165

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1063

ccaaattctg	aatgtgtact	cggaaggcgg	gaacacacta	cntccaatcg	gaactgcaaa	60
tccgtactca	atagccgtgg	ctatgggctc	tttctggaga	cttgaatgga	atgcgcactt	120
atgcgggaga	taggatgtgg	gctttgtcgg	caaacgggaa	atgccctatg	atttagatcg	180
tgatactaca	caaatccttc	actggaggag	atgactcgct	tggctataga	gaagctgaat	240
cgttcgagga	aggctttttc	cttatggctg	agggtagtaa	agtggattgg	gctgacatgc	300
caacgatacct	gtggggattg	ctaccgaata	tcttgctttc	gatgtgcttg	tgccgtggca	360
ttcgactttg	cccgtcgtga	cggacaaacg	gcgtcatcat	cgtgccggat	catggcaata	420
gcgggtgtaag	cataggcaaa	caagtgtgaa	agactatgat	aagcgttctg	caaaagacct	480
tttcgatcaa	tctgtcgctt	ccgcctgaca	gcagacggac	ttgcaggcgg	tttggctgaa	540
ctcccgcgga	caaggctccag	ggtttggtaa	gcaatatctg	cggattcgat	tggacgccaa	600
agagttggaa	gctctttata	attgtccgga	ttataatata	gtcctatccc	caaagagcag	660
cgcaggcaga	cggagaatac	cctctaagcg	gttcgctcag	taccttcatc	gcacgccttt	720
atacgaagca	cacttgatcg	gttttacgac	gcacggacat	actgccgaag	aagtattgnt	780
ggcgcctatc	acccccaaag	atacacgccc	gatgggaatg	gtcataaact	atgactgaat	840

gactatctct	gccgtctctt	cgaattagga	agccaattgc	cctccttacc	gacaagatat	900
ttgctcccca	tacggaagta	ttccaaggca	tagctacagt	atcaaagacg	gaaagaagga	960
aggagaactg	cctgttcttg	agtgaaaaaa	ggtagccatc	gcttactggc	gagtcctttc	1020
tccaatacgg	tatcttcaat	aagaaagcga	ttgatctgtc	ttccgtagta	gtctatgtga	1080
taagactaag	acttttctatt	tgcctcgtga	actgcgttct	tattcgggaa	taagccgctt	1140
gatgtgtgaa	gaaaacccat	caaag				1165

(2) INFORMATION FOR SEQ ID NO:1064

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1781 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1781

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1064

ggttgatctc	ctttcttcgc	aaaaaggaca	ctaatactcc	ctgctttaaa	atccggaaga	60
ggtacagcac	atttgtgtag	ggagccattc	gtgtccgaga	aaattgattg	aacatttcgt	120
ctctctttat	ctatctgttt	tggggatttt	tatgatatag	tttgataatt	gcacttattg	180
taaaagtatt	atgtcattta	tgagtgggta	atctgtaata	gtataataat	atatgaaatg	240
atggcttgag	tggtatgttt	tcatgcagat	cggaaagaat	ttttgttg	acataatggc	300
ttgagataat	ctgtttgtta	gtaaatttca	gcgtttttgt	gtcgcgagca	ctgaaaaagt	360
caattcttag	agaagtcctgc	cgatattgtt	atgggtgtccc	gtattttttt	ttgcctcaca	420
ggtgccccgat	ttcccccccc	ctttttgatc	gaatatctgc	actggcaatg	taaccttgtg	480
cacaaagaat	taataattcc	acagggcaat	cgcatttgaa	ccgttacaca	cftatagatt	540
aacgattgct	acgctcgggt	atcaaacaag	tacgaattaa	tgggaccttg	cacaataagc	600
aggcactttt	gtttattctt	cttatttgtt	gtcaggcact	atttggtaca	cgccggattt	660
ccacaagtgg	aaagatagct	ttccacgggt	gaaaataaac	tttccaccaa	tggaaaattc	720
tttttccaac	ggtggaatct	acttctcttt	aatgagtacc	cctttgagac	atccaacgac	780
atgacgtcaa	cagcacttgt	gtctctccaa	tcctcgcctt	gtcctccgtg	tatcaccttg	840
tgtgccacgc	tgtgccgtct	gattcacatt	acgtccatac	gaccgatacc	tcctccggct	900
ccaataatct	atccggctac	cgtcgggtaca	cgtagcagcc	aacaatacca	atgaggagaa	960
acccgctcga	atgaaaccgc	aaaccaattt	aatgcgtcga	ccccgggggc	agcctgtcag	1020
ggcgatcgct	ttgaaaattt	ttagtctctt	tcctctatga	tttgaatctc	tggcatatga	1080
ttcgacttgg	ttttgataat	tgaatgtagc	aatcggttagg	tttataatgt	gttgacagtt	1140
caaatgcgat	tgcctgtat	ccgagaaata	atgcagaact	atctctcgga	aaaagcacta	1200
cctttgtagt	cattccaatt	taattcgtag	taatcaagca	gcaaattgcg	tgtgatggaa	1260
aaggttatcc	gcaggctctc	atatcggtct	atcataaaga	aggtttggcc	gagatactgg	1320
ccgattgaac	agacaagggg	tagagtctgt	atccacagga	ggaactcatg	aattatcact	1380
tcgctcgggt	atgcgtgtcg	ggccgtggat	gactcgacgc	gtatccttcg	atgctcgggg	1440
gacgggtgaa	gacattacac	ccaatgatct	cgccgggtatt	ttggctcgtc	gcggctcatga	1500
aagcgatgtg	cgagaagtag	cgagtacggg	ttacctctta	tcgatttggt	catcgtagat	1560
ctatatcctt	cgaggccacc	gtggcatcag	gagcatcgga	agaagatatc	attgagagat	1620
agatataggc	ggtatctctc	tcattagagg	agctgccaaa	aacttcaaga	tgtcgttatc	1680
atctcgtcac	gggcacagta	tgcgggattt	tacagctgct	gaaagagcag	ggagctcgaa	1740
cctctttggc	tgaacggggg	atccaagagt	cgagtgcattg	a		1781

(2) INFORMATION FOR SEQ ID NO:1065

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 624 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...624

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1065

gtatagcctt	gacggacgaa	tacgacacga	ccgaatgagt	cggcgatgag	acgatcggca	60
gattggtcgc	atcaggcagg	ttcgagcct	cccgtatctg	gcggcattgc	ggccttgaat	120
atccagtcgc	aatacggctg	tctcgggagg	gaggggaagt	ctgccgggtt	gtaacgcttg	180
tgtccgtcgc	catcggaag	aggaggatca	gcttgcgcc	ccactgctcg	aagtcggctt	240
tcacctctcc	aaatctttca	gagcatgggt	ggtaggctcc	tgaccggctc	cgagatggcc	300
atcgcgaaqt	agccgcgtcc	tgtggtagag	aggagcgagc	ggtttctgca	tgggagagat	360
cgtggtagag	ctgttcggca	ttgatggagc	cgtcacctga	atgtcggtcg	aatcgtgtag	420
cagttcgagc	ggttggcgag	cgtcttaccg	gcttctaccg	tgaacttcct	catccggcac	480
aatacgctgc	actggccata	cgcgtaccgg	taacgaggaa	ataatgacct	gcattcattc	540
cttggggcgc	tcgaagagcg	tcttcaggtc	agtcggttca	ttttcatcta	atagagcgtg	600
cggatgatgc	ccgaggtgta	gctc				624

(2) INFORMATION FOR SEQ ID NO:1066

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 567 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...567

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1066

gctccttacg	ctttaatttg	gtttgcaaaa	atagtaaata	tccttagtat	cggaaaaata	60
caatcgctcc	tctctcgatc	tttcctcgcg	ggtagagaga	aggtagagag	aagagcgact	120
gcagcgggaa	taatctctgt	cgggtgcgcg	ggcctataat	cgagatcttg	tatccccggt	180
ccttatagtt	ctacttgaag	gtccggatat	taccgtccgg	ataaaaccca	cgcacgatga	240
tcaaggaccc	gatcggctct	gtccggcctc	acgaacgatg	tcgctgacat	cggccccgag	300
cttaccgggt	ggcggttgat	cgaagagatg	atgaatcctt	tctgatacct	gcatecttga	360
atttccccga	gcttacagag	gttacctcta	cacataagaa	acaccatagg	atcgcatctg	420
ttcggcaactg	agggtccttg	atgatgctcc	caatacatctt	cgggtcgatt	cgnccgggtga	480
ttaccgaagt	cttccttcat	tgttctttga	gcgtgacngt	cagttccttg	gtcgcttcct	540
acgattgatg	gtcagcttca	ctttgtc				567

(2) INFORMATION FOR SEQ ID NO:1067

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 915 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...915

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1067

```

aagaggccgt attggaaga tgaaacggtg tttgcgaaac caaagaagag gccatgctac      60
ctttatgccc tatgctacaa cagcattgtg caggctgaga gcggtatcag aaaccttggc      120
ttactccttc gcaggcagaa tttttattct gaacggcttg tggatatttc gctattttcc      180
cgatgcccggt actgccgtac cgattttgtc gaagatctgt tcgatgtgtc tgcattgggat      240
accatacagt accatcgtgc tggcagatga aaggttggga tacaccttta tatacaatgt      300
aaaccacatc tttgaggaca atcctccatt tattcgcat cagagactta tacctcggca      360
gtggatccca atccgacagg ctcttatcgg cggactttat ccttccgaca ggctgggaaa      420
agaaacgcgt ttatctgcat tcgatgggtc ctatagtggg gcttatgtat ggataaacgg      480
gcgttatatc gctacactca agggggcaat aacgatgccg agttcgatat cagtgcggcg      540
ttcgtgcggg acagaacaat gtgagcatac aagtagtccg ctggacgggtg cttcttattt      600
ggagggacag gatatgttcc atatgagcgg attgcatgcg atgtctatct gtacgccacg      660
cctcgtactt ccattcggga tcattaataa cgagcaagtt gcatcccgaa tccgactata      720
ccacagggga aatatcgtag ccgtcgagat ggacaacaga gacgggttcg ctgcacgtaa      780
gacttcggaa tacgtctctt ggatcccaaa gggaaagtgc tctgggagga acgaagcaaa      840
cccgaactgtc tgtgggagaa cagaaacaaa gccttcattt tcgaaagccg atcttcgcaa      900
tctatccctg tggac                                     915

```

(2) INFORMATION FOR SEQ ID NO:1068

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 889 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...889

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1068

```

gtaaaaggta tgagcatgaa agaagccgct ctggagggtga accactggtc caccagaaaag      60
ctacatacag cccagcgcac ccacgcactc gctctccggt gcaacgggtga agaattgctct      120
cggacgttgc ggtgaggagt ccaccttacg gtggctgccc tgcgctcggg aggtattcct      180
gccagacagg tctatagccg cgctgggcac atacggacga caaccacgca tgggtggagg      240
tatggtagat ggcaaatggt acttcacgag agcctgcgaa cetgcagccg agctaacgat      300
gcatggttca acagctccgt tgtccgcgcc atgctgacgc atagcgggtc ttcggtcggt      360

```

acgaaggtcc	ggaagagaag	ttgttccgca	cgccaactac	acggagatca	actgtatcga	420
caactatgcc	ccgacggaaa	tatcgaagtc	aaagtcaccg	accgctccgg	tgctgtggtg	480
gaaggggccc	tattcgtttc	tgcattctaca	actattccgga	gttctatccc	gtgggtgacga	540
gcaatccgat	gctcaaggac	tggtttccct	gcgtgtaggc	aaaggcgaat	gctcatttgg	600
gcagccaagg	acggactctt	cggttatgcc	ctgtccaggc	cgacgatcgc	aaaccgctgg	660
ccatcgcact	ggacaacttc	gaagcaagcc	cgaatgggccc	gatttcaaaa	tcgtaccacc	720
tgcaggagat	cccatcctac	tacctgtctc	ccacagcaga	tcagcacgaa	cgacgcccgt	780
ctccgcgtga	ggattccatt	cgggcagcct	atgaagccac	attcgccaca	gccagcagtc	840
tgcagcactg	gctgccgaat	tgggtgtgga	tgcgcctgcg	ctacaggca		889

(2) INFORMATION FOR SEQ ID NO:1069

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1499 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1499

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1069

acgacgtact	ggccaatata	gaagagcgcg	acaggatcga	ctccacacgg	ccgtttcacc	60
tttgagacag	gctgaggatg	ctttagtgtc	ggacaatttc	atatgacat	tccgcagcag	120
aaggcatggt	tgctggagcg	ttttcagaag	tgaccggttc	atgattccaa	tagaaataga	180
cagcggatcg	ggatttgctt	cgggtgtggtg	aatgctattc	gtcatgccga	gaaagcaatt	240
ggagaaaagc	tccgataagc	tttactgcct	ggcgatatt	gtacacaata	cgctgaggtc	300
gaacggttag	gaaagaaaag	attggagacg	atcgattacg	atgtttttcc	cgactgcgtg	360
gggcaaaggt	actgttgctg	gcccattggg	aactcccga	atctatcgga	tggcaggaga	420
aaatggggta	acgatcatag	agccacctgt	cctgttgta	tccgcttgca	aaacaaaatc	480
aaatcacgat	cgaagctacg	cgcagcctcg	gcgcacaagt	cgatcatctat	ggcaaaagag	540
gcatgcggaa	gtaaacggtc	tggtcgggca	gaccgaagga	acggctatgt	catagagagc	600
gaggaggagc	tggacaaaat	agattacaca	cgtcctgcat	tctcttttcc	caaacgacca	660
agagcctgga	gggattcggg	cagatctcga	cagcatcagc	acacgtatgc	agccgggtgt	720
aactttcgag	catcagatac	catctgtcgc	caagtggcca	atcgaatccc	gcataatcgga	780
gcttcgccac	tgcacacgaa	ctggtgttct	tcgtagccgg	agagaaaagc	tccacgggaa	840
ggtactcttc	gggcattgtc	tggcagccaa	tccgcgcagt	attttatttc	ctccccggag	900
gtcatcgtgc	cggatatgct	ggttcctctg	cggccagcat	aggcatctgc	ggagccacct	960
ctacgccccg	atggcagatg	aagaggtggc	atcgcacatc	aaggctctat	tgtaaacctc	1020
gccgccaccg	caagtggctg	ctatatectc	ctttataatg	catcccctga	taggtgcgtt	1080
gggtgcgata	cgcgccacat	tgtacggagc	ggagtgtacc	aaataagcag	gactacattc	1140
ttggccgata	cggttccgta	gctgaccgtg	gaatccgctt	caggaaaattg	cccgcacgca	1200
tgatgtgata	caactgctcc	cacttccctt	atacagagtt	gtcccgggag	ggatctgaga	1260
gagaggacag	cccggagggt	gtacaactcc	cctgtctcgg	ctttgccggc	tccgggcaga	1320
acctaccggc	ccgtaaggct	tcgatcagag	gggattcgtc	cggattgctg	ttaggtctcc	1380
catgatcagg	atgaaaggga	ttgtgcgggc	ggcttagtat	ccattgcatt	tcgttctcaa	1440
cagagtggcg	gcatacgtgc	gataggcatc	gattggcgca	cacctcctct	gcgagaagg	1499

(2) INFORMATION FOR SEQ ID NO:1070

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1100 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1100
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1070

```

ttgacgtgta ctgaaaaaaag ttgacagttg ggcggggatgc aaccagtatc attatgggca      60
aacattttaa caactttgaa cgccttagca tccttgagat tacctctcgg ggtcagatag      120
caaagtagcc attgagcaga aatatggcta agtcatggtc tcattcgctc ttggccttagt      180
aaatttgga ctcgaagtaaa gttcatccgg tcccaatgaa agtgtcccaa tccccccaga      240
gtgagtaccc ctgaacgaaa aagaagagtt agagcagcta cgtaaagaaa atcgggtcctc      300
aagagtcgtc tcaagcgaga agaactaggg catcaagcct acagctactt gtagagttgg      360
cagaagaaac ctacggcatt cagatacgaa aaactccgaa gccaaagtagt tcaccgttta      420
tcagagccgg agcctaggtt tctattgctc gactctgcga actgcttggc tttagccgtc      480
aggcctttta aaacgtcatc tcaacgattt agcacaacat gaggaggatg tcctatgcat      540
agtatcatcc aatattgttg gcacttaaga caagcagagc acctacctaa gccggcttcc      600
gagagctcat ggtgctttgt cagcaatact tcggcccaag ttcacgcttg ggcgcgatcg      660
cttttgcgcc ctactcagac gccatgtatg atgctgcgca aacggctctgt gcgcccctcg      720
acaaccaact ctcggatagg ctctacaagt atgaagacct gctcaatata gaggcctaagt      780
ttgtccctcaa agacctgggg aactccttgt agcagacatc acctacgtgg cttccaagat      840
ggggtttgcct atctctccct actgaccgat gcctatagtc gcgtatcgta gggatatcgct      900
tacatccgac cctggaagtt gaaggctgtt taatgctctg catcaagcct ttgctttcta      960
cgatcaacat caaattgata gaccaatatg attcatcata gcgaccgagg cattcagtat      1020
gccggtaagg ttacaccgat ctgttgcatg ggcgaggctg gcgcatcagt atgactcaac      1080
gggagatcct ctgcataatg

```

(2) INFORMATION FOR SEQ ID NO:1071

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 391 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...391
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1071

```

tcgactctnn aggatcccct gataattgat ggaaaattcc acatttcttc agaaatttac      60
acntatggta actttttgat aattatagtc ttacaccgcg tcttttttga tggatcatctc      120
atttcttcta aacctattta ttgatacttc tcccatttct ccttgaacca cgcagcaatc      180
ggaactctgt ccacgacagg tcaagcacgg tcttgccatc cttttcctcc ctgcccacct      240
tcaaggtacc ttctcaacgg tgaacgaacg cttgtactca tccgaaaaca gtttcccgtg      300
acgacaagga cttttccctg tagcagttca tcagtatgtc tctggataat ccgaccgaac      360
ggcaaatcct ttctattctg aggaactcgg c

```

(2) INFORMATION FOR SEQ ID NO:1072

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 902 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...902

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1072

atatgattca	tcatagcgac	cgaggcattc	agtatgccgg	taagagttaa	cggatctggt	60
gcatgggcga	ggctggcgca	tcagcatgac	tcagacggag	atcctctgca	taatgcattg	120
gctgagcgga	tgaacaatac	gctcaagact	cgtggcacat	ctcctcttcg	aagcagtctt	180
ttgatcaagc	actccttctg	tagaacaagc	cgtgcgcatg	tacaacgagg	cgcgtccaca	240
tcaagtctag	gggcgaaaac	gcctatgcaa	gtcattgcgc	cagagtctaa	aaatcgttac	300
tggcaaggat	cgaacattgg	ccggagattg	cccccgagct	atacgaagga	tgaatgtcag	360
acaaaagagct	aactttgtct	gtgtcaaccg	aattagactt	aagggtaagg	ggtgtcaacc	420
taaaagtagaa	ttatagaaaag	accagtaaac	caattgtaga	actatcccg	ccaactgtca	480
acttttttca	tacacgtcaa	gcacaattgc	ggatcgaaaa	aagatgggtc	gagaaaaaat	540
aaaactcgag	ccaaaagcaa	aaaaatctcg	cgcgtaaaga	ttttcctttg	gttcgagttt	600
ttgagatttt	aggctcggtg	attctcgcgc	tttcggccca	aaaacaacat	acgacttttc	660
tcagtacacg	tcacaatcaa	gggaaatcgg	gaaggatcag	tcgcccggat	agggatctgc	720
agaaggagga	ggcgttcgac	tcccatagtc	ttgttggggc	gcgggtcccat	cttcagctcc	780
aaaagccgcc	ttgggctatg	tcgctatggt	ggaaccatgc	tttatccaag	gtttcccgtt	840
gagcacggcc	ttttggatgt	atttggtttc	agctccggca	ccttggcgat	gatcgtaagg	900
tg						902

(2) INFORMATION FOR SEQ ID NO:1073

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1280 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1280

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1073

gagaccattg	cacggcattt	ttgcgacata	tttgcttgca	ttgcttgcca	tatcaataat	60
atttagtatt	ttacacgtat	aaacaagagc	ataaatatgc	tacaaacaa	actgtcaagt	120
ctacactcag	gttcgcagag	atcgcataaa	cactctttcc	tgcgtcaaat	caatgccggt	180

tttgattggc	gtggtatcgc	acactgctga	acaagaaata	caccaagaca	cagaatgcc	240
taggtaccct	gcctacgatg	cgctgttgat	gttcaagatt	ctactcctgg	agactgggat	300
ggtttgagtg	actacgaggt	tgaggagtg	atcaacgact	cctgcttttc	agtgaattcc	360
ttggcttgga	cctcggttc	ccttcccccg	acatagcacg	atcagtcgtt	tccgtagtga	420
actcactcgc	ttggggatta	tgataaactc	cttcgggagc	tgaacaagca	gttcaagaag	480
cacggcatca	cgtatcgat	caaggcgcca	tcgttgatgc	gagcattgtg	gatagtccta	540
cgccctgat	ggcaacgtgg	tcatagaagt	ggctgaagat	cgagaggaac	tcgttcggag	600
gaagctcgta	cacagccagg	aggcttatca	ttgtgaatca	agagtggcaa	accgggagta	660
gactcggagg	ctcgttgggt	acgcaaggca	ggcactatcg	gtatggatac	aagaagcacg	720
tcttgacgga	cgagcgggtt	tggtagaaac	agtggtcacg	acctcggcta	attgtgcaga	780
cacgttgtat	tacctgagct	gatcaagaag	tccaagttgc	cgggaggaat	taggttttgg	840
ccgacaaagg	ctattgcagc	aagaagaatt	cggagtattt	ggccgtcaag	gtttgataga	900
tggaattatg	ctcaaggctc	atcgagggtca	atcctcaagt	gaaagtcaaa	aacaactcaa	960
tcggatgatc	agtaagacgc	ctgcttgata	gaacgtacct	tcggtagtat	tcgacgatgg	1020
ttctgtggcg	acgatgtcgc	tatcgagagt	tagccaagac	acatacccg	aatatcctga	1080
agctatggcc	tacaatctca	agcgtatgcc	ggggcttctt	gtgcttcagg	cgcaaaatag	1140
gcgctaaacg	accgtccctc	gagggcaatt	gccctcaggt	gcgggaaagg	ggactaatcc	1200
ccaagctgca	aaacagacga	gaatgtcaaa	aacacaccgg	gaacaagcga	gcagaaagaa	1260
cagcctcttt	gtgcatggtc					1280

(2) INFORMATION FOR SEQ ID NO:1074

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 884 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...884

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1074

tgctcggtag	ccgaatatgc	cagcttctcg	cgtatggcag	ccatccctag	atagccagca	60
tccagccgat	accggagccg	aatccataga	cggtagcctc	ccgacattga	taaactcacg	120
ctgctgcatg	aaaagcgatc	ctccgagatc	gcgcagttca	ccgcatcaa	gggaaggaag	180
ataccagcg	aagcatgagg	gaggggctga	atctctccac	caccatttcc	acgagctgcg	240
taaagatgca	atcaccgcga	taaagatgat	cagtgcagag	aagctcagat	ccactcggca	300
tattgggatc	cgagccaaga	aagagcaccg	gccttgaaaa	tatgttctgt	aacagatagt	360
tgatgggcaa	ggtgcagacc	aagatgaaa	tccggcagct	ccgagtcgga	tagaggtctt	420
cacattcttg	gaaacggcca	aaaagaacac	attcccaagt	agtaggcaaa	aacctatattg	480
tccacgaata	cgagcggaca	aacatactta	tgtaatccat	aattgatact	gtcttaatta	540
ttatcaggcg	tgctctactt	agttctcttg	caaatccttg	ttacggggccg	atgtaccag	600
atgacaactg	ccacgggtgat	cagagccatc	ggcggcagat	catcagaccg	ttattgacat	660
aaccggattc	gtagaagctc	ttgggatgac	ttttatatcc	agcaatgtac	cggagccgag	720
caattcgcg	aagaagcgat	aataaccaaa	acccatccat	atcccgagacc	gtttccgata	780
ccatgaggaa	tgacttccaa	ggacgatttg	ccaaggcaaa	agccttcaaa	cgtccatcaa	840
aatacagttg	gtaatgatca	ggccgacgaa	aacggacact	gctg		884

(2) INFORMATION FOR SEQ ID NO:1075

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 686 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...686
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1075

acagccgctg	catagacagg	accggccaga	cagccgcgac	cggcttcgtg	caaccgcatt	60
cacgcaagtc	atcgtctatg	tagcgagaga	gcagcatggg	aagaaattag	aacatgctta	120
ctacacgttt	caaggcttgg	aggaattctc	cacttcctcc	tcggtattgt	agagagcaaa	180
ggaggcgcca	gccgtgcatt	gagtcacatg	ctttcgagta	gcggttcggc	acagtgatgt	240
ccggtcggat	ggctataccc	agccgatcga	gcagcatgcc	gaggtcatag	ggataatgtc	300
ccctataagg	aaagagagca	caccgctctt	gtgttcggct	tctcgatgat	acgggcattg	360
gggaaagctc	tcacgccttc	ggtggccatg	cgaggagttt	gtcttcatgt	gcggctatgg	420
cttccaaacc	caatccttcg	agtagtcgag	agctgtggcc	aaagccgtgg	agccgacata	480
gtccggcgctg	cggcttcgaa	cttatagggc	aattcgttgt	aagtgggtctt	ttcgaatgta	540
ccttgggcat	catctctccg	ccaccgtggt	aggggggatc	ttcttcaaca	ctnccgtttg	600
ccatcaatac	gcctattcct	gtggtgccgt	agacttttgg	ccggagaagg	cgtagaaatc	660
cgttccaact	tccgacatct	accggc				686

(2) INFORMATION FOR SEQ ID NO:1076

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 713 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...713
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1076

aaatccacta	cgtattcttc	tgtaatgcaa	atgccgttta	cacgaatacc	tcgcgaaaat	60
ccaccaaatg	aggagatgta	aacaagccta	cccgcatacg	gcaacttgta	agatagcagc	120
cagtgtagag	gcggtagagc	ctttgcctta	gtaccggcca	catgtatcgt	tcggtaagcc	180
ttgtggggat	gtcccacacg	cggtctatgg	tctctacggt	accgagcccg	ggtttatatg	240
cactgcccct	tggtgttgga	agacaggggt	agcggtaaag	agataccgga	tagctcttcg	300
taagtcatca	tgccgtcccg	atgatggtct	gctctcggtc	gggccaacgg	aaacgatagc	360
gataccgact	cccaattctt	tttccaagaa	gggatatagt	cgctaaattc	tttggggaaa	420
tcagcctcgg	aaaccacatt	ttcattgact	gctgccaacc	ggggagttcc	ttgtaaaccg	480
gcgttacccc	tctgtcagat	ggaaggggaa	attgcgtgtc	tccttgccgt	ctatctcggt	540
gccacgcaag	ccttgatcgt	ggggaaaaga	tccatgacat	cgcttttctc	atgatcagct	600
tggtcacacc	atgtcaacata	atggtgtagc	gcaaggcacg	aggtctatcc	agccgcaccg	660
gcgtttgcgt	cccgtcacag	agccgattcg	cgttccaact	tacagagctt	ggc	713

(2) INFORMATION FOR SEQ ID NO:1077

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5969 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...5969

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1077

gctgaaaaag	gccgattcgg	gagggtgataa	aacaaaggca	cccaccagtc	tatagggaac	60
tcgatgggtg	ccttgactct	ttgaggaggc	tatggaaggt	tattcctctt	tatttgatcat	120
agggatattc	ttgctttgtc	cgaacaagcg	gggcggtatg	acggatacgg	gcgggatgga	180
accggcctga	tgagccggga	gtatatgtgg	catattcatt	gttatttggg	cgtaaactgt	240
ttgtcatatc	gttctatata	aatcctataa	gcacttttag	caaagagttt	tatatctcga	300
taggagcatt	cttggccggc	aaatatagta	aaaaccatca	acctggggaa	tcgaatttca	360
catcgcaaat	cttctccact	tcggtcggct	caggactatt	tgtttccaga	agaattttca	420
ctgtcaggaa	aaaagaatcg	gttatttccg	tccgattatt	tggtcgttat	ggaattatta	480
ctacttttgc	cctgggtaag	tcctatacgg	catgctccct	ttgattcccc	cagggtctgt	540
cgcagcaagg	gtattaggtc	gtagcggcgc	gatatagcca	gcttaccctc	cgcctcttta	600
gctcagttgg	ccagagcacg	tgatttgtaa	tctcgggtcg	ttgggttcgaa	tccgacaaga	660
ggctcgaaaa	gcattgcacc	gattcttcag	cttggtatga	gaagtcgggtg	cagtcctttt	720
ttactgttcc	taatctttca	acaccttggt	tccgttccgg	atttctaaag	ggctgaaagg	780
aaaacgcagt	ttttattggc	ttcgtttggt	gcggataatc	cttatttttg	tatcatttaa	840
gggataataa	agttcatgtc	aaggaaaaac	cataccact	attgttgctc	tggatgacag	900
ctctccttct	gacgtatgt	ttgcctctgg	aggccaacgg	aatcgcgctg	ttaccgtggt	960
tatcgatgcc	cggacacgga	gacatgattc	gggggcagtc	ggtaatggtt	tacgagagaa	1020
agacatcaat	tggccgtggc	tttgcggtg	ggacgactga	tcaagagcaa	gcatccgggtg	1080
tgaaagtgtc	ttatacccg	gagaaggatt	tcttcgttac	cctgatggac	gtgccgaata	1140
tgccaataaa	aacaatgccg	acctttttat	cagtatcatg	tcaattcgca	agagcgaggt	1200
catggaggct	atggtaccga	gaccttgtaa	tgggacatga	acgtaacagt	aaaaatatgg	1260
cggtagtcca	gcgtagaatg	ccgtcatatt	gatggagaaa	gactatagga	ccgtttataa	1320
aggtttgacc	cccgttcgtc	cgagagttat	atcatgttcg	aactgatgca	gatacgtatc	1380
aggatcagag	catcaaactg	gcccaacaga	tccaaaaaag	attgtggcca	aggggcgtca	1440
tgataggggg	gtgaagctcg	gcaatttggc	gtactcgtgt	tttctgccat	gccgagcggt	1500
ctcgtcgagc	tgggctttaa	agcaatccgg	cggaggctcg	ttatttgggg	tcggaagccg	1560
ggcgtgacaa	ttggcttcgg	ctatcgcccg	aggatttgcc	cgatacaaa	aggattagac	1620
agacgttccg	gtaaggtgtc	cgagcccgca	ccacaagcta	ccgaggagag	gataaggttg	1680
aagtcgaacc	agaagacaat	ggtatttctt	cgggtgcagat	atgtctgacg	gcaaggaaa	1740
tatagctccc	aaggggcatg	ctgtaagccg	gatgagggtg	ctcattccgc	gaagaaaacc	1800
tataaaataa	agacctgtct	tccacgacga	agctcaaaaa	tgccgataag	cgattgaaag	1860
gtacaagggtg	gtcattgaa	aacgaggcgg	tcgattcttt	tatcttacag	ggcggtttcc	1920
agcgaggatg	aggctcgtca	ccttcggaaa	aaagtcagga	aagtttccct	gatgcttata	1980
tcgtggttta	tgaagcgggc	aaacgtgtgg	agagatatat	tgaaattgtc	ggaaagcatt	2040
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tctcattctc	tttttctgct	gtacttcggc	ctgaactacc	tgaaaggatt	caacgtttca	2160
aacggggcaa	tgtgtattac	gccgcttttc	ctgaagtga	gaacgcaaca	ttgccagtc	2220
cgtatttggtc	aatggctata	aggtaggagt	ggtaagtctc	ttagtttcga	ctataagaat	2280
ggtcgttcta	tcgttggtgg	tatgacctcg	agtccgaata	tcgtatgccc	aaaggtagcc	2340
atthggccat	tcccagacag	ctttgagtgg	agcggagctt	cgcatcatac	aaggcgatcc	2400
tgggatggat	acctgaatcc	cggggatacc	attcggctctg	aaactcccga	gatattatgt	2460
cggtaacttc	gaataagatc	gttccctctg	tcgtgaacag	atgccgaagg	tggattcagt	2520
cattgtcggc	ctggcgaaata	tgggtcaatat	ccgaatttgg	ccgtaatgat	ggagaatatg	2580
gccgcaacgg	ctcagcgcta	aatcgtttga	cctgcttcttt	ggacaagtc	atcgggacgc	2640
aattgctgcc	gtcatggcca	atacacgtac	cattacggat	aatgtggcaa	tgcttcggaa	2700
gaattgaaac	agttgaaact	ggaggctctg	atggccgaat	tacagctaca	tcagagaatc	2760

ttcgaagctt	ttccgatcaa	attcgcaatt	ccacgggttcg	ctcgggatgc	tcttaaacga	2820
caaatacgctc	tacatgacgac	tgatagtagt	gcttcgagtg	cggatgcact	attgcgcgac	2880
ctcaaagcca	acccaaacgc	tatgtacact	tctccgtttt	ttgatcgat	gtgagagaga	2940
gagtatagca	tttagcagat	atattgggtat	gatgagacga	atttttctcc	cttcttgctt	3000
tttctcctct	tattgcactc	tattgggtgt	aagcagggac	aaagtcggga	gcggggcagt	3060
tgcttgcaat	gatgcacgag	gcatacgcga	tgccgattat	tccggagttc	ggattttggc	3120
agacagtcctc	catcgattta	ctccaccgat	acagtggttc	gtaaggaggc	tttgtctctt	3180
agccgcaggc	cgagtacaaa	gaatgcgaac	gcaatctcgc	cttcgccgat	agtgtttgct	3240
tgttctctcc	gatcggatcg	acagcatgtc	ccatcctttc	agtagacttc	ctctgtggag	3300
ggaaggctctc	ctgaattcta	tctctcgggt	ttggtgaggc	ttccggtcag	gaacatactc	3360
gtttgcggtg	cagtacggac	agcttggcaa	tctcattgtg	ctgagtgttt	atgccggagc	3420
cgaggctatc	atcatactgc	tatccgagtg	acggatatgc	agaccaagtc	catgctacaa	3480
ctcgcgacat	tccctatgat	gctgcactta	actatcgatt	tgccgattgg	ggttgcatat	3540
cgaaatagtg	acctatcctg	tcgaagagac	ggtaaaatgg	gtgagctttt	tattcaggcc	3600
gattccgagg	gacatgctct	tcggatgatt	tgatggccgg	aggcaaagcg	atgcatacat	3660
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cagcatcgta	ctactctcat	gggagagaga	gaaaaggcag	aaaagcgtat	ccgtatttga	3780
gcgacaaact	tggtttatct	tcccgataga	ggtcggctat	tttctctatc	aattatttca	3840
aacactatca	tgtctgaaac	gttttcgggt	cgttcgtccg	cttattgcgg	cagaatatga	3900
acgttggttt	tctcatactc	gtatcgtagt	cttgtcctta	ttatatccat	tggtgaaaga	3960
ctggcagggt	tcgacccgaa	aaaggccatg	ccacctttct	tcgtgtggat	ttttgtcacg	4020
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aattctatct	gccgtaggta	ttcttggtct	attggtagct	tactatctgt	ttcagatgac	4260
gggcttatcg	gagctgtaga	gactaaagac	gctctgcata	cacttaagca	gcacttcctt	4320
tattggcttt	gccgttagct	ttgtgctgtt	ggcgtccgac	agaacggaat	ggggcgtatt	4380
tctttctttt	tctttccgcc	ttgtattggt	tacttatcct	gcatcattgt	tgtctctttg	4440
cttctgaatc	agtactatgc	caatccattt	tgtctccgtt	ttcttttgat	aaattctatc	4500
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catcccactt	atatcttctt	gggcataattc	gctattttta	tggcagcgcc	gtacgtcagt	4620
atttctatcg	ggagcaaacg	gtatctacgg	tggaaatgatc	tatggtttgg	ttgccttgtc	4680
atgcttttgt	tttattacc	aaagcgcttg	gccatgctct	tcattccctt	gtccatcatg	4740
ttcttttttt	tgggcgagcc	tttttcttat	ctcagaagaa	aaaacttttg	ttcacctctt	4800
tctgcttata	atcgtaggcg	gttttatctt	caacggcctc	ttgtctcatc	gttttttgcg	4860
gacggagagc	gcattgcagat	gcgtgatata	gccatggatg	catcaatcgg	catccatgga	4920
caggatattcg	gttaggcact	atggacaatt	attgcaggcg	cagatcgata	cggatatattt	4980
gttgaagcat	ccgcacaaca	gcttctggcc	gatggtatgc	agcttggtat	tcccgggatg	5040
gttggtttggt	tgtattcgta	ggcggtttgt	tttattttgc	ctatcgcgat	cgcggaatga	5100
tttctctctt	ttctacctg	ctatcctcct	gacaatggca	gtcgatcccc	tctgatcttc	5160
gttcgagggtg	cctattttgtt	ggcatttttg	ttctggtatt	tgccgtttct	ccgactcgaa	5220
agaaagactt	tgcttgaaa	aatttttaag	tttgccctga	tcctcagatg	atcagagttt	5280
gtttccggtat	ggttgaaaaa	tgaaaaagca	aaaacaggga	aaattatttt	attccatcag	5340
caagtggcgc	ggatgttcga	tctgccggat	tccactctgc	gtttttggga	aaggagtttc	5400
cggcattaaa	gccacgtact	tccgaaggcg	gcacacgtcc	tatacagcca	aggacatcga	5460
aatggtgcgg	ctcatccacc	accttaaccg	gaaaaaggac	tcacacttgc	aggcacgaag	5520
caagctctca	agaacgatat	gatggtacta	cgcgcaggga	agaagtcatc	agtcgtctga	5580
aagaaaccgt	caggaaactat	gtgatatccg	tgatgccatc	gaccaatggg	agcggaaaat	5640
atgtactgaa	ggaaaaacga	tgctgcgatg	gatcccgaat	tcgacttctt	ctgaaagcct	5700
ggaaaagcag	cggactctct	gtcggtatga	aagcgatgag	ctcttagccc	tgcttgagag	5760
ttgttcatac	agagtggaa	ggtgaaagcc	gaagagctat	atgctatcgg	tgagacaaag	5820
ctccaagacc	tcgaatcgty	ggtgtaggty	agattcgtgc	tgagatggty	gggccttccg	5880
caagcagatt	ctgatagata	ctttgycggt	cggacgcatc	ttggctccgc	ccttcttttg	5940
cttcggagaa	tattttaccc	gttaccctg				5969

(2) INFORMATION FOR SEQ ID NO:1078

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6272 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...6272

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1078

aggctaaagc	agagcagtcg	ggagaagtgc	atatcccgag	gagagatctt	aagaaggtaa	60
agaagagcat	cagaaagatc	atgtagggtg	tcagaaaaaa	agcggcgaca	gtataggcca	120
tgccaatacc	cccaaagcca	tggcaatggt	agtgccagat	ttttgaggat	cttcatcgat	180
tttgattctt	ttttcggcta	accatcgccc	cacagcctgg	tgtatggatt	ccaatccgaa	240
gtcttagggg	ttatatcgtc	cggagccaat	atcaccaatt	cggctgcata	atcattgcta	300
tggctgagga	aaaatcagaa	acttgagctg	caaaaaacaa	atcgccgtat	ggacgcgcat	360
ccctccgtag	ggatagatat	tgggaagcga	gaaagataag	atactgcttc	gacttctatt	420
cctgtctcct	cacggatctc	ttgatgatac	cctcttctgc	cgtttcgtcc	atgtccataa	480
agccgccggg	aaatcgagtg	tgcctttggc	cggatctttg	gctcggcgca	cggccaatat	540
ctgcccgcgc	tatcggtaat	gaaacaagcc	gtcgcagcag	aaggattgca	taataaatca	600
atccgcactt	cggacacgat	ttggctttcg	ggtttcttcc	gcaaaacccat	cgtttccgca	660
gcgcgagacag	tatctgaaag	gtgcgacgga	tgtcagcgt	ttattttgcc	tcccatccca	720
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agcccttcct	taatcaatag	agagtagtgc	at			6272

(2) INFORMATION FOR SEQ ID NO:1079

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2263 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2263

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1079

gactcgttcc	tgccaagggc	tttcgagcag	aaggcggatg	ctttcggccc	tacggcacac	60
gccaaacggat	tgcccatgaa	cgtggggccg	tgcatgaaca	gccggcttcg	cccgaacata	120
tcgtccgggc	tatcgcttcg	gttgtgacgt	agccgagagg	gtcatatagc	cgccggtcaa	180
tgacttgcca	agacacgaat	atccggcacc	gtggcagcgt	gccggagcgc	aaacagttcg	240
cccgtcggcc	gaatccggta	gctatctcat	cgaatatcag	cagtacgccg	gcttgaggca	300
gagtcctgca	gcttcgacga	gataccgggg	atagtagaaa	tactaccgcc	ggctccctgc	360
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gcggctctat	gtccgcgggc	accattcgcc	accgaagcga	ctcttcgggt	gtggcaggaa	480
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tcattggcgtg	ccaggatatcg	ccgtggtagc	ccgaacggat	cgtagcgatc	gggtacgtct	600
gctctgtccg	caggcttgct	gatactgcaa	agccatttca	tggctacctc	cactgccacc	660
gaaccgctgt	cggcatagaa	gattttttca	actcggacgg	caggatgctc	agaagcagtt	720
cggccaatcc	tacggcgggc	gatgggtgaa	accgccgaac	atgatatggc	tcattctcccg	780
aagcgcggtt	ctacggcggc	attcagtcgc	ggatgggttat	agccgtgtat	ggcgcccacc	840
acgaactcat	accgtcgatc	agttcgcggc	cgtcttcagg	atgatgcgta	ctccctcggc	900
ccgcttcacg	ggaaatacgg	gcaatggatc	ttagtcgatg	tatagggatg	ccaaagggtg	960
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aaccatggag	agcataacga	gcattggaca	tgcatatgca	caggtaatac	aatccatgta	2220
gcagagatag	aaagcgattc	gtacagaatc	ataccacgaa	cag		2263

(2) INFORMATION FOR SEQ ID NO:1080

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2022 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2022

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1080

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cgccgcatcc	agaaggcgcg	ccacattgtc	ttgggcatct	ttccggtcac	ttccggcgaa	180
aacgattgag	gataaacgga	taacggcata	gccgaagccc	accacaaaga	gccatccgag	240
tacagatccc	agaccttagt	cccttcgtgt	ccgattttca	tcagcccga	ggcacgaaag	300
tcagacatat	cagcaaggca	ctccaagagc	cgtttctgtc	cataagcctg	cataacgcat	360
agccgtggcc	cgatcgatac	gcccattgtt	gtgcccataa	agacggcact	ctgctctgcc	420
agagcgaaac	aaaatgccac	gctccactga	tatggaagaa	aagctccaaa	ccggcaggtc	480
tgccttccga	ttgaaatcct	ccagtagcat	gccggtgaaa	gcagctgcga	aaatcaggac	540
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cgtgagatgg	ttccttcata	gcttctcgta	tgacaatttc	ggttcgattt	gtttaatacc	660
aacgcctccc	gtgggtatca	tgccctcgag	acgatagccc	tgcgactcct	ataagatcaa	720
ttcggtcaga	gagccaaggg	agggagttag	gcaaaggcac	tctccagcgt	gcattgtccg	780
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ccgccggata	cgggttcgtc	tatgtagcgg	cgaaaaatgc	ttctatgtct	gtcgtgtcca	960
gaatttcttc	ccagggtttg	cttcccagtc	gccgaagttc	atctccttca	gccggtcgtc	1020
tcggatggct	cgggatagcc	gcaaaaaggc	gccaacttgg	ccgcacgctg	cagaggcgcg	1080
taaagaccgc	ctcgggatcg	aggcctttga	gacgggcaca	agccgccag	cctcctcttc	1140
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tgtctcccaa	gaagacttta	taatgcataa	atadagaagg	gtactacaca	gtaaaatcat	1980
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(2) INFORMATION FOR SEQ ID NO:1081

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3696 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3696

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1081

gcagagcggtt	tctatcctct	gtgaatgcga	tcgcagcggt	tcggaagagt	agtctgaccg	60
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aaaaaaaaatc	gacgataaca	gccggtagag	actgttgcat	gggagtttca	ttgaactcct	240
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gctttgaaga	gattgatgaa	atacttcctt	tcttcgtcaa	atcaatgctt	gtgtctgtct	780
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aaagacctct	tgcaaatacc	gactgcaaac	cgccgattat	acattataat	tatagcctta	900
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gcacgcggctg	tccaaaacat	cggagcctat	ggagtagagt	atctcagctg	atcgaggccg	3600
gttcattgctc	gtcattaccg	aacagggaat	cccgtgtatt	tcgcaattga	ggactgcata	3660
tnocgataca	gatacgtatc	ttcaaagaac	ccggac			3696

(2) INFORMATION FOR SEQ ID NO:1082

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3589 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...3589

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1082

gaaaaactcc	aaaatgctcg	ttatccaaac	caattaatcg	ggcgaatcat	tagaatctca	60
cacatagggc	attttataaa	gaggggtgtg	cagaacgtag	ttggacacac	cctcttctct	120
tgtttcagaa	aggtagaggt	gcgggtttcag	cggataggtt	cgagtgggtc	tgtaaagggtg	180
gatatgtttg	tatcacggct	gtagaactgc	ataccgcggc	ctctgctgtt	ttgcccccttc	240
tccttcttcc	ggcacttcgg	gtttggccgc	atcctcaagt	actcattccg	tttttccatg	300
ataaaacatc	tttttatcga	tcttgacgat	acgctttggg	acattatcat	aataataaga	360
gtagcctcga	agagtgtgat	catacacatg	ccgggataga	tatttcgact	cgttcgaaac	420
tttcttcagt	atataatttg	ccacaatgaa	gccctttggt	ctgagtatcg	gtatgggcaa	480
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gtctgatgaa	caaatactag	catggaatgc	agagtttctg	tccattacgg	gcggaaaact	600
cgactttgcc	ctcatgctct	ggaagtgatg	gagtatcgca	ccgttactac	aagggtttata	660
tccttagcaa	cggctttcga	gaaatcagca	tgccaaaactg	accaatagtg	gtttggcacc	720
ctatatgtac	cgagtattct	atccgaagat	gcgggtatca	acaagccaaa	caaaaagata	780
ttcgcttcgc	actcgtcaaa	gccaaagcca	gaaagacgga	aagcatcatg	atagagatag	840
ctgggaagcc	gatatagtcg	gggcgggcaa	tgccgggtctg	gctctgtctg	gtataaccgg	900
aacagacata	tcttacctga	tgacgggtga	cagcacccat	gcataattatt	tcctctttgt	960
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cgggagcgaa	tgccgtcacg	tagcgcaagg	cttccccctg	cggttgtccc	atctatagaa	3060
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tcgcgccatta	gcgaccccca	accttgatgt	gggccttatt	ggccatcagc	agacggcatc	3480

ggcaggtaaa gtaagggtag caccctgctg aacgacaagg ctgtcgagag caaggtggga
cggtgtgctc caaatatcgg atcccgatcg ataaccaagc cggtcactt

3540
3589

(2) INFORMATION FOR SEQ ID NO:1083

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2955 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2955

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1083

tgcaacactt	tctacagaaa	aattccccgac	gaggctagcc	tcgtcgggga	taaaatcaat	60
cgtttgattt	cgtgttgcat	ttatcatatt	aagggtttga	caaagaaaga	gaagagacat	120
tctgcgctat	ctttgcttgc	agatgatgat	ttatttcaga	tcgatacagg	atcttctctg	180
cttctaccat	tcgcagtgaa	ggtattcgcg	cgggatttcc	ctctcctgca	caggactata	240
tggatttgcc	attgacctga	atcatgagtt	gataactcac	ccatacagca	cgtttacgga	300
agggtaaagg	gcaattcaat	ggaagacgcc	catgtgttcg	acgcgatatt	cttgttatag	360
acaagtccct	tgaagcgcg	gatggcgata	tgctgtctgc	tttttggatg	gagaattttac	420
cctgaaaaca	atccgcatca	atcggaagag	attctactcg	aaccggccaa	ccccgactat	480
cctaccatac	tgtatcgcca	gacaacgatt	tcgtcatctg	ggggatcgta	acctatttgt	540
tcataaaata	agaagatgat	cgccctatgt	atgccctctt	agactgcaca	acttcttcgt	600
cagttgcgaa	aggggtgttcg	accctctgct	ccgaaacggc	cggtcgttgt	cctctccaat	660
aacgatggtt	gtatcatcgc	tcgcagaatg	agcccaaagc	attggggata	gggatgggac	720
aacctttctt	caagggcagg	acttgattcg	ccggcacaaat	gtggcattct	tcagctcgaa	780
cttcttctct	acggcgatat	gtcccgacga	atcatgtcgc	ttgtatcgga	actgtacctc	840
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gtcgctatgc	cacatgatag	tcgatagagt	cgccaatgta	cgggtatacc	ggtgagtata	960
ggtgtagccg	atacgatgac	ctgtccaaag	tggcagacaa	atatgccaaag	aggtatgcgg	1020
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aaaaagcggg	gaaaaaaatc	gacgatcaac	agccggtaga	gactgttgca	tgggagtttc	1860
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caacagtctc	aaaatgtgaa	gacgctcgga	atcgggtcaat	gtttcgacac	gattactgat	2520
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tgacagagag	gaatttatgg	tcaatgggtt	ccggatgctt	ctctccgaac	catcgctcgc	2820
gaatcgggag	tagcccggtg	gcatatatac	aactacttcg	agcacaagga	cagcctcttc	2880
agggctgtgc	tcaacctctc	ttggatgaat	tcgggcggat	aatgggaggt	cacaacagtg	2940
gcaccattat	ggacg					2955

(2) INFORMATION FOR SEQ ID NO:1084

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 861 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...861

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1084

gggtatcgga	ctctgtagca	tcaatctcgg	agaagtagac	gaagaaaaag	ggattatcaa	60
aaggctttgc	aagagtatgc	cacggcatac	aaactgatga	acagttgtcc	gatcgatggc	120
actggctgaa	ttcctgtatc	ccgatggacg	tatcaatctc	aaacaaggta	acgaaaggct	180
ctaccagcat	ttcattcttt	ggccgaaggg	actgcgaaag	aaattaattc	gacttcacat	240
ctgatgaaat	atacaatctt	caatacyaga	atctcgagcg	taaaaaagaa	tacaacaagc	300
cctcgaagca	ttctgtctga	gcaagacgtt	gagcgacagc	atgccattgc	gtacaaggtc	360
agcagcatac	aagaaacgcg	attcaactac	gacgaaacaa	gtcccaaaaa	gagcttgaag	420
aaatacagca	agtaagcaag	gaaaaacaaga	gaaatcgaag	tttatcctct	tgagcactct	480
ttttgccctt	tcatctcgat	tctttttgatt	tctgttctga	catatgcata	ccgtcaggga	540
agaagcataa	caagctgatc	aaagagacgg	ataaaacttcg	ctccggcttt	tcaccggtat	600
tacacacgaa	tttcgtacgc	ctatcacccg	catacaagtt	tgaatgagaa	aatgagttca	660
agtctctgatc	tccaagcatc	ggacagaccg	agctgcacaa	gataatagac	agacagagta	720
gccatatgct	gaattggtga	accagctgtt	ggatatattgc	aagatcagaa	gcgagtatcc	780
acgccgaatg	gcgcatggcg	acatcgctct	ttcgtacaga	tctcatcgat	cgtgcacata	840
cgcacaggct	caagacatac	c				861

(2) INFORMATION FOR SEQ ID NO:1085

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4324 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4324

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1085

aggtaaatgtc	tataaatctca	aattctacca	atccactcgg	cactttgatg	aaaccaaatac	60
tccgattttt	ttaccocatca	gtccctgtgc	gatgggtgat	tgacagagat	tttgtttctct	120
ttgaggttg	cttcggaatc	ggaaacgggg	tataggccat	cacgacacct	gtcttttacgt	180
tcttgatcgt	caccttttca	gaatctgaac	gctttcggtg	cttacttgcg	attcgtcaat	240
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tatctgccga	gaaatctcgg	gtcgtgtgac	gcttcaagtt	cagccaattc	ggccaaaatt	420
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tgtaaatgag	acctttgcac	ggcaattggc	gtgcaaaggt	ctcttttcag	gtgatttgag	840
ggaaaaaaat	tgatggctcc	agccggttct	ccatcagctt	ttcctccacc	actgtttctt	900
ttggagcaaa	aagaaaggag	acagctgctt	cctaaggctt	gcttcgcctt	tcgcgcagaa	960
tggtgtagg	cgagacgggtg	agtcgaccac	cgtggtctgt	tcgaacggga	tgattcctcc	1020
gtcagagtaca	ttctaccgt	aaggccatag	cgctcttcga	tcagttcggg	atccgaaggt	1080
attcgggctg	ttcaggatcg	agggggagcg	agccggtcag	caaaggatgc	cgagcgattc	1140
ggcaagaaga	cggttcagtg	gatgaagagc	caggcgatac	ctacctgctt	tcgattcttg	1200
aaaaccttag	gcagcgaaat	tccggcggta	ggacgaaggt	atattttctg	atgtggttgt	1260
ccttcatata	gcggatgcct	cgttgtctat	acggcagtat	tcggctgcca	tgctcatgtc	1320
cgacacatga	tcgagaggct	tttgcgcgca	ggatccacac	ctttcagctc	gctatccgct	1380
ccacgctccg	attctgaagg	gcatacgcatc	cgtaggcata	ccaacttcgg	tgggatagat	1440
gatcactttg	ccgtcgcgaa	gagccgatac	gcacgttcca	attctcgtct	gttgggattg	1500
tcggggtaaa	tcttgatgac	atatcatttc	agtgtatata	gaaatagggt	gaaagtctta	1560
tactgtctct	tttgtgaagg	tcggtagctt	cagtagttgt	accagctac	cctgccatgg	1620
ctgctgcgta	gcagccgttt	gatctcggcc	cgttgtttat	agttaaataa	ggatgccgaa	1680
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ccatggtctc	agagcgcaaa	agcgtcgtag	tcctatccgt	aaacctcctg	tagctgtagc	1800
acgggtatagt	agcgccaagc	tgtcggcggt	aggatacgt	gcggcgagcg	aatgtaggcc	1860
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cgaggaaatt	tatcggccga	tcgggcatag	gcttctctga	aggaggcccc	acgtagtccg	1980
catcggtcac	gatgctgtcg	cggcttttct	gcgcgattgt	tcggaggatg	aataaggcct	2040
gacgtaattc	ttcttttctc	ttttctaccc	ggttcatcag	ccgacgtttg	aacagcttcg	2100
gccacagtgc	attgccactg	gccggccttg	ctttgaagat	gaatagcccc	acgatgccat	2160
cagcaggagc	aagatgctga	taatgctttc	cgatttgccg	aagtgaagga	gtcttttcac	2220
tgtgtatcgg	ggctgttttg	cggttgggtt	attcagagaag	agtagcccg	cgcgcatgtg	2280
gaggatgcgg	tcggtgccgg	ctgcaatttc	tcacgtggg	tgactatcag	gaaggctctg	2340
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ggttcagatc	ggaaagcagc	cgttcagctc	gcaagaagcc	ttcttttcggc	ttctttccggc	2580
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tgacgacg	tggtctttcc	ggcaccgctt	gtgcgacgat	ggagactata	tccccacggt	2820
cgatggcaat	atctacccct	ttagtacttc	cagagagccg	aaactcttgc	gaatggtgcg	2880
agcttctata	acattgttctg	gtcagttttt	ctattacata	agcggetatc	ctgcaaccga	2940
aatagccggc	atataggata	tggtaccggc	tgtggagcgt	ttgcagcgtc	tccttcgatc	3000
tccattacag	agctttctgc	cggcaactcg	ctgctgaaac	gaccggcacg	ccgcgtgata	3060
ttcccagctt	gcggagtgcg	ttacggaagc	acgtgccaac	gtgcagttgt	acgatccggc	3120
tatgtccgcc	acatcgtaag	cgaggcatcg	cgtttggctc	ctgctcccat	cgaactgatt	3180
accggaggcc	tcgccgcttg	cttagggcga	tgaggaatac	tttcggactg	agcgatcgat	3240
ggcatcgacc	acaaaagctg	atttggtctc	atccagcagc	tccccatagc	ctcatctttt	3300
agaaaagcgg	caaccggata	gacctttacc	cgggattgat	atcctgcaga	cgatcggcca	3360
acacctctac	tttagaccgg	cgacgggtact	gtgcagggtc	atgatctgcc	tgttgatatt	3420
ggacggattc	ctacatcggc	atccaccaaa	gtcagttctg	ccactcctgc	acggcagaga	3480
tctctgctgc	atagccgect	actccgccgg	tgccgacgat	cagtatatcg	agtgccggag	3540
cttgctcggt	gcttccgtgc	ctatgagcag	ctccgtctct	catcccaact	gccgtccatg	3600
aggggctttt	ccgtttcttc	ggtcattgat	ccccctttca	ttgagtgcct	tgcgatagag	3660
agccgcattg	cgttgtgttc	ggcataggtg	tgggcaaaac	ggtgacggcc	ggagaagtcc	3720

tccctggcaca	catatacagg	tagccatgcc	gatccgctcg	gagcacgctg	tccctggctgc	3780
ggtatgcggt	agccggatcg	ggcccggagg	cagtccttcg	ttttataagt	gttgtagcggg	3840
gaatccgtct	gcaaattggac	attcaggatc	cacggatgga	aaagtctccc	atcgcaaaact	3900
tcaccgtcgg	atcggcctgc	agagcatccc	ctcacgcaag	cgacggatat	agagaccggc	3960
tatctgcggt	attcatcgga	ttttcccgc	tcctcctcca	cgatggatgc	gataatggta	4020
cttggatcgg	cgtcagcccc	aatgagtcgg	ccagactccg	tcgctctctg	tccaatagcg	4080
gtcgtagtat	ctctttcagc	ctcagaacca	agtccttggc	ctaagtgtccc	aatccacttc	4140
gtatgtttcg	ggcagaaaaa	ggctgggatg	gagtggtgat	cgaatcccag	cgaatcgcag	4200
aaagcggagt	cggcaacagg	gaagaaagct	cttcgggctt	catcatcagt	ttgcccgtca	4260
tcctccgatc	agatcctcct	gtgtgcggac	gtggcggagg	tggaagcgta	caccgactgt	4320
tttc						4324

(2) INFORMATION FOR SEQ ID NO:1086

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2333 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2333

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1086

gagccgacac	gagagaagca	tctccctctt	cgggcgtatt	atctcctatg	cgctcccgcc	60
atccaccttg	tccacgaaag	catacaacttc	tacttttcgtg	tcagaatttc	atccgtggcg	120
acggcagtg	aaggcaacga	tagtctctag	taaagcgatc	gccatggatc	gtgtaaaccg	180
catctgccaa	cgatgcgaca	ccacaagagt	tcgttcgtca	tccgatgctt	caacctcaac	240
ttcctgggtg	aaggctgaaa	caggcgagct	tcggcatccc	attccatata	cggaaggaaa	300
tttgacacatg	tcgatccaag	cgacggggga	taccattcgg	ctgaaatagg	gaataggccg	360
gatggctgca	tccacagcta	agtccatcga	gaacagggag	aggtctcgga	gggtttcccc	420
gtaacagcgg	aaacaaataa	gcatagtcag	catagttgct	tatccaatag	tactgaggca	480
gtcttccatc	ccggacacga	aataaccaca	gttgagctga	ggagcggcca	gtgtccacaa	540
ccatccgaat	atgtagctgt	agtcacttct	tccgcttcga	tagctttgtc	gtatagcgat	600
acaactttcc	tgtacctgct	ccggcaaaac	gcaggataca	gatgcgggat	tcaatgtatg	660
cagcataaaa	acctgcaagc	gattgggtgaa	tcattccagag	ctttcatact	cggtgcaccg	720
actatctgta	tctgtccttt	gctgtgccga	aagctaacat	ggagagcaaa	cacagcttta	780
agaggtagac	aactgattat	ttcctttcat	ccgattgttt	ttctttttta	tccgccaatg	840
attttattcg	tgagagcgaa	tggaagaag	gaagagcacg	aggatgcccg	gctgacagag	900
catcagttat	ccattgtctt	ggcaaagacg	agttcttgag	cgacgtacaa	tccgaagagt	960
tcagcgtagc	actcgatcct	cccactcctt	actgccatga	cggatgtaaa	tgatcttgct	1020
cccgaattgt	tcacggagtt	catgtcatga	gtattgacta	ctgtggtaat	accatgcttt	1080
gtgtaagact	atgtataaga	tcgtctatta	cgagcgaagt	cttcggacca	aaccggagtt	1140
aggctcgtca	caaaagagat	acttcggccc	caaagcatcg	pacggggcaat	ggcagcccgt	1200
ttcatcatac	cgccactaat	ttcgcgggat	acttatgtct	ggcatcggaa	agccccaccc	1260
gatgcaatag	atactagccc	tctctcgacg	gactgcgggc	ttatcgctcg	aaaacatatt	1320
catgggaaca	taacgtttct	catgacagtc	atactgtcga	agagcgcaga	acctgaaaaa	1380
gcataccgac	ttcgcgcccgc	agaattttca	gtcactcttc	atcataatcg	taatatctcg	1440
accatcatac	aatacctctc	ccgatgtagg	gcaataagcc	cgatgatgca	cttcagcagg	1500
acggctcttac	ccgctccgcy	cgtccgatga	tcagattggg	tttgcccgtc	tcgaatgtcg	1560
ccgagatatg	ttgagtactt	tcttgtcttc	aaactgctta	ctgacttctc	tgacttcatc	1620
ataatacggt	agtataacat	ttacgcaagc	aataaattcg	tgaggataaa	tccgccacaa	1680
gcaccaatat	actgactgca	accacagcgt	tggtattgct	ttccccacct	gcaatgcccc	1740
acctttcacc	gtatagccgt	agtaccggcc	acgctcgata	tgatgaaagc	ataggccacc	1800
gacttgataa	tgggtaaaac	acattataag	gggaaaagaa	aagctgcaaa	ccgtactcaa	1860
agcgctccga	ggcaaatctg	gcaccaacga	acaggccaga	taaccaccga	catacccggtg	1920

gacatgctga	ttatactcag	aaccggaacg	aacagcatga	tccgatgatt	ttaggcagga	1980
tcagataatt	ggccgagttc	acacccatcc	ctccatagca	tcgatctgct	cagtcacacg	2040
catggttccc	aattcggagc	aatactcgac	cccaccttac	cggccagaat	gagacacata	2100
accgtggaga	aaactccaac	agaatgatct	cacgtgtgga	ataacctatc	gtaaaggcgg	2160
aatgagcggg	gaggtcatat	tcagagatag	ctggatagtg	ataacgctcc	gatgaagaac	2220
gaaatgataa	ttacgatcca	aaccgaatcc	actcgagctt	gtctatctcc	ttaatcaatt	2280
ccctgaatga	catcctccac	ctgtaggcag	agagaatgtc	cgtctggggat	cct	2333

(2) INFORMATION FOR SEQ ID NO:1087

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 999 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...999

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1087

aaaagattgg	caggagtttt	tggtaaccaa	tgggttgctc	cttttgaaat	cacatggcaa	60
atggcggtga	aaaccttttc	ggaaatgcga	gctcaattag	cgcagaccgg	atgggcgtgt	120
gtacggtatc	cggacaaatg	caaagaccgt	attgttctct	gccattgata	gattgaatca	180
tttgataag	gcaaagggac	aacatttgta	tctaattggag	atggcattac	aaacctgatt	240
gagatgactt	gcgtgcagat	ctgggagggt	tcatgcatac	aaataaaagga	gattttctga	300
tagaagaatt	gcaccactgt	ccgtaacacc	ggccacggct	cttatacaag	ttctgtagga	360
agagacctct	tggtgagaat	tcgcttcgac	aaagctctga	tgctaaaaat	caagcattag	420
cgacaagaga	atacagcgaa	cggataagat	gaatatgaac	ttcttccttg	acataacatc	480
tgttggtgtc	gcaaatcttt	tgtttataaa	gatggattaa	atthaggaac	aaagtactta	540
aacatatcac	tgacgacgag	aaaaagagga	gggtaaagct	attcttagag	caactcgaat	600
aatgaatgac	tacgcaaacc	aagctcgtaa	tgcagttgtg	gtgagccaga	aaaagtattg	660
atcgtttttg	atgatagact	gagcagaaaag	cctgtcgtta	ctataccgta	ggtgaaaagg	720
agcaggcaaa	cattaaaaag	aacttgatca	gtaccaagta	aaatatTTTg	taggggatga	780
tgctcagatt	atagcgtagc	cgatgcttat	cgtgatgcga	tgaattacct	tgaaaggcaa	840
cacttgtcga	ttttgcagag	ggcgaaagag	ataatgactt	ttcagaagcc	ttcgagtgcg	900
aggaaaaaga	acctcaagag	aaaaaatcta	aaaagggaaa	gacaaggcca	cttctgctca	960
gaatctcttt	gcagaacacc	gatgatcaat	aaagaatcg			999

(2) INFORMATION FOR SEQ ID NO:1088

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 671 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...671

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1088

tacgcagttg	gttttcaccc	gtgattcggc	acctgccgaa	ctatgcgacg	cgccgaagac	60
ttgggacgtg	agtgggtgat	ccgtgccacg	ggcaccgtat	ggagcgctcc	agcaaaaatc	120
cgaatatccc	caccggcgat	atagagaagc	agtcggagaa	atggatgtgc	tgaaccgctc	180
cgaagtgcg	cctttcccat	cgaagacgag	accgacggag	gcgatgacct	ccgcatgaaa	240
tatcgtacct	cgacctgcgc	cgccactgcg	tgcgctccaa	tatggaactg	cgccccggat	300
ggctctggag	gtgaggaagt	atctcgacgg	cgagggattc	ctcaagtaga	gacccccatg	360
ctgatcaagt	ccacgcccga	gggtgcccgc	gatttgtcgt	accctctcgg	atgaatcccg	420
gccagttcta	cgctctcccc	cgtcgcctca	gaccttcaag	cagctactga	tggttaagcgg	480
cttcgatcgc	atttccagat	cgtgaagtgc	ttccgcgacg	aagaccnccg	cgccgaccgc	540
agcctgagtt	tacgcagatc	gactggcaan	atgagctttc	gtggagcaga	agatgtgctg	600
tccaccttcg	aaggatatgg	caagcacctc	ttccgtacat	ccgtcacgtg	gagatttcgg	660
aagccttccc	c					671

(2) INFORMATION FOR SEQ ID NO:1089

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 833 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...833

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1089

gccggcatgt	aacagaaaaag	ctgttgata	aactggcaaa	gtattcattt	tctataattc	60
atgtcaggat	atcccaagag	aaaaggcaag	actctatgag	atcaaataatg	tagaaacaga	120
acatggcgca	atagtttgtt	gtactggcaa	tcaaagaaaa	tctcttactg	gaaacagggt	180
tggtatggtga	aggtctatgt	ttggctttca	gaagattggg	gacttcctaa	tggctgatgc	240
attttcaaaa	gcaaaatgaa	agatagtgcg	aaagtagatt	ttgtcataga	gaagcagaat	300
gtcagcaata	tcccctgtac	aagcgttttc	tcggtggcctt	atttcggagt	ggtcccttat	360
gccagagttt	ttggatagg	atttacttgt	accagggaga	cgttggttaga	tattttgttg	420
gaaagtctgc	attatcgatc	agaaacaata	ggttggtatt	cagttggatg	gtaaaagaac	480
aggttttctc	ttaaggatat	tgcgtgattt	tataaacata	ttgccggaag	atgtatttct	540
atggctcaca	gtaggttgat	gaatgcata	ttggttaata	gagataagaa	tggaacaacg	600
ctgtgaattc	tatatatgac	tccttcttat	ctagtaagta	gatgattttc	ttgaaattga	660
aatcacagag	aataacaatc	ggaaattcta	atacttctag	gatggatgtg	tgtatcaacg	720
catcctttta	tcanggtaga	gccgttgaga	aaattggtgt	atttggttga	taaggcacca	780
gagtttacca	gaagcttacg	tttggttgct	tcatgccatg	atatgtatgt	ggg	833

(2) INFORMATION FOR SEQ ID NO:1090

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1903 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1903

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1090

cgccgacagc	aacgacgaac	tgatgaatct	ctcccgggag	ataatgccca	actgacccgt	60
ctcagtacgg	atatagccct	gagcgaaccc	ttgttcgtcg	catccgaacc	gtatgggaga	120
gcgatgagaa	agaaaagctc	tcggatgaga	aaaacgcctt	ctgtataatt	gctatcgggg	180
ctttgtcgat	agcggacact	actcccaca	gagaaaaaag	accggctgcg	taccctgtcc	240
gaagaatgag	tatggcctca	ttgacattcg	gacagaatgt	gctcaaggac	gagaacgcta	300
caaactccac	ctcagcgatc	cggcggctgt	ggccgggatg	cccagacggc	tctcgctctc	360
gcttcggaga	aagcccggcg	aaagggctat	acgagggttg	gcttttcgac	ctttctgctc	420
cgagctactt	tgcttttatg	agcattgtcc	cgatgggaac	ctgcgcgggc	agatgtatga	480
agcgaataatg	gtgtcggctt	cgtagacaat	gagtataaca	acgaagctct	gatccgtaga	540
tggtaaacgg	ccgtctcgag	gaggcacaac	tctctgggtta	cgatacctcg	cccactttgc	600
tcttcatgac	aggatggcca	agaaccccaa	ggcagtcgaag	aactactgga	caaactactg	660
gatgcataca	agcccaaaagc	gacagagaat	tggagatgat	ccgcaaatgg	gcttgccgac	720
aagacatccg	aagtcataac	ttcacgatac	aaccatggga	ttgggcatac	ttctcggaac	780
agtaaaacag	gccactacg	atctggacga	tgagatgatg	cgcccgtact	tcgattaggg	840
cgagtcacac	gtggtatctt	cggcttggcc	aaccgactgt	acgacttcat	ttctccgaac	900
ggacggatgt	gccggtctat	catccggatg	taaggtgtac	gaagtatcgg	acgaagacgg	960
ctcttatatc	ggtctgctct	cacggatttc	tttccacgcg	aaggcaagca	aacggagcat	1020
ggatgaacac	ctccgggacc	agtccgaaca	tcagcaccgc	cacatcatca	tcgtgatgac	1080
ttcacccctc	cttcggcgga	caaaccctcg	ctcctgacag	caggtgagtg	gagactttcc	1140
tgcacgagtt	cggccatgcc	ctgcatggca	tgctgtcaaa	tgccgcttca	gctccttgtc	1200
cggcacctcg	gtagcccgtg	acttctggaa	cttcccagcc	aaataatgga	aaactggctg	1260
acagagaaag	atttctcgac	acctttgccc	gccattatat	aacggacgaa	cctatgccta	1320
ccgattgggtg	gaaaactcc	tctcggcacg	aaattacctc	gcagcaagcg	gtcatgccgt	1380
cagctcagct	tcggctatct	cgacatggca	tggcatggat	ttctgtctcg	gtggatgaca	1440
aattagacat	caaggctttt	gaagaggctg	ttggtcaaaa	gctcttattc	tacctccttc	1500
gcccccgaa	gccgtgatgg	cacggccttc	ggtcatatat	tctcgggagg	ctatgcagcc	1560
ggatactagg	ttacaaaatg	gcggaagtgc	tggatgccga	tgctttcgca	gcttttcagga	1620
agtgggtatt	ttcgatcgcg	aggtagccgg	tcgtttccgc	cgtgagtatt	ggagagaggc	1680
gatacggccg	atgccatgga	gctgtatgta	gctttcgtgg	acatgagccg	gacattgtct	1740
ccctgctgaa	gcgtaccggc	ttggttagcc	tcatttatgc	ggtctcaata	ccacgtaaaa	1800
cgtaagcccc	aaacgacacg	tcgctttcgg	gcttacctgg	ttttantcct	ggttttggaa	1860
actgtgtctt	gaaatacagg	ggatatgatt	tactggcgaa	tgc		1903

(2) INFORMATION FOR SEQ ID NO:1091

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4544 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1091

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(2) INFORMATION FOR SEQ ID NO:1092

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2932 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2932

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1092

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(2) INFORMATION FOR SEQ ID NO:1093

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5742 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...5742

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1093

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aaaatagaga	aagacaccgt	ttgataatca	aacacttaca	aatagcaaaa	gcctctattt	4620
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tgttcttgca	accgactgat	aatcatacgt	caaagagcga	tgtgaggttc	gatttttttc	4740
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gcactcacat	ctttggtttg	caacttcata	atatcggaga	aaagctttcc	ccggatcgat	5160
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cctccaatag	acttgtggca	gcgggcttca	tgaagcatgg	catgctgtcg	gaagtccgca	5580
agggagtgcc	ctccgctatg	gggtatacctt	ccagctgctt	tagctcggcg	atagcttgga	5640

gagaggtctct ttcagctctt tgtcatggcg ataatactta tgggagtagc gcaggagttt
gcccgtgattg gcgaaacctt ggttctttga taaagtaagg ga

5700
5742

(2) INFORMATION FOR SEQ ID NO:1094

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2035 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2035

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1094

aggtaatctt	cccgtgcccc	tacacttgcg	taatgcccct	accggtctgt	ggccgacctt	60
gactatggca	agggttacaa	atactcgcat	gattttccga	acacttcgtc	tcacagcaat	120
atctgcccga	caaagctgct	aacacctttt	ctggacacct	caaatgcaca	cagtgcata	180
agccaagctg	ggagaaggat	gaagcgatgg	tggaagaggg	aaaaatccca	aaaggataca	240
gcagataatg	actcttcttt	ccgtaccgtc	tctatgccga	cagatatttt	ctctcaaac	300
aattcgacat	cgaccagaca	ggttggtgca	tgcgctggg	tacgacggcg	tcctgctggg	360
agcatgggccc	ggagaggatg	cagccggaag	tatccgcagc	attgcctgga	cataggtacg	420
ggcacagggc	tgattgcctt	atggtggcac	agcgattccc	acaggcccgg	gtgcagggaa	480
tagaaataga	cctatcgctg	ccgaatgtgc	tgcgcgaaac	gcccgtgect	ctcttttttc	540
gatcgaatag	tgatcgcttc	gggagacatt	ttggattcat	cgctcgaagc	cttatcgga	600
atcaacgttt	cgatctgatc	gtctcgaatc	cgcctttttc	aagtcttcca	tgcatgcccc	660
cgacagacag	cgcaccatgg	cagcactgaa	gaaaccctgc	cgttggaaaa	actgatatgc	720
cgtgcctccg	aattatctct	ccacaagggc	gattggcact	cattacgcct	cgcgacgggc	780
tgaagattta	cgtctgtatg	cagctaccta	tcgttggttt	catctcgctt	gacgaagtgc	840
gtaccctacc	ccataaagaa	cctaaacgcc	tctaagcgaa	tgcgacctgc	cgatactgct	900
atcgaccgat	cgccattcac	cgataccctc	acatacatcc	tgccacaggc	tactattcac	960
cttgagtacg	tgcgtctgac	gagcctttct	atacgacttt	ctttccgcat	cctcggtctgt	1020
aggataacca	gctgctcccc	atacttgcca	acggtacgac	gagccagtcg	ataaccgttt	1080
cggccaaaac	atcagccaac	tcggtatcat	tcaggggaga	tctcttacct	cggagtcgat	1140
ggcttcggca	agcaactcgt	tgacctcagc	tgtggaactt	cctctccctt	atcgttgaca	1200
gtgccatcac	tgaaaaagtg	cttcacgaga	agattccgaa	gtcggctctgt	acataatttg	1260
tattgctcac	ccgaagatcg	tactgacatc	ataaccgcgc	ggatcagcca	catctttcag	1320
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ttagcagagc	tttgataatc	tgcatcatct	cctgatagac	cggactgacg	cgcaagggct	1560
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tcgggatgta	ccctgttcat	ggctgcttcg	gogtcatctc	cccatcggtt	gcgggtttgg	1680
gattgagctg	catgatcagt	tcgaaggcct	ccttctttcc	gaatcgga	gggatgctcc	1740
ctcctgcaac	tgctcgaacc	gtttgagaca	aagtcgtcat	aatggttcgt	aagaatatgg	1800
agggctgtct	gccagctgtc	gtatccggga	atcggttcca	ttggagcagc	aaacactctt	1860
tggtgtctctg	gcacagatac	cggggggatc	gagactttgt	accaatccta	tacttcttct	1920
acttcttttt	tgtccgcctc	gataccggca	cggaaagcga	atcgctccaga	atctcttcca	1980
aatcacgatg	caggtagcca	tcttcttctt	gttaccaatg	atatagggag	caagc	2035

(2) INFORMATION FOR SEQ ID NO:1095

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 514 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...514

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1095

tgctttgcag	ctccacaaag	cgattataag	agacaagatg	tggaactcg	atcgacaaga	60
ataggtgatg	tattgaagat	aaaaagcttt	caaattctcg	atcttgacag	atgaaacagg	120
atcaggatgg	tcatgacctc	actgtccaca	tcttaaactt	tctattcctg	cgttttttgt	180
ctgcctcttc	gagggttttt	tcttgattgc	ttcatcaaaa	agcttgagga	aatcatctat	240
gatgcaaaaa	catcaactat	atctgtcttc	ataaagtagc	gttttggttcg	ttcgatctta	300
ttgattatca	actgctaaga	tacaaataat	tcgctacttt	ttcagcataa	tgcccacggt	360
ctttgggcgt	ttaaccctaa	tcaaaaaaca	aatcattggg	gttttcttac	gtcgaactga	420
cgttaagaag	aggttacttg	caaattcttc	gtaaaagagt	caggcgtacc	tttatgctta	480
taacataaaa	agaaagtgtg	cctcaatccg	cacg			514

(2) INFORMATION FOR SEQ ID NO:1096

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 3444 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
(ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...3444

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1096

gagctcggta	ccctgccacg	aacgcgcgatg	tagcgaggct	tattagccga	gccaaataaag	60
tgagcataca	aggaagctct	acttccaaaa	cctcatgtct	tcttccgtgc	tcttgcgaa	120
agtcagagtt	tgcttgccat	cgaatgtgct	tcttccacgt	atgtgatctg	tgccaggtca	180
agttgctcgg	caatctaggt	cctacctgag	ccgtatcacc	gtcgatagct	tgacgaccgg	240
cgatatcaga	tcgtggtcga	tctttctcaa	agcttgagag	agtgtgtaac	ttgtgccaat	300
gtgtcggctc	caccgaactt	acgatcgctg	acaaggatgg	catatctgca	cccatggcat	360
atgcttcgcg	caggatagct	tctgcctgtg	gcgtcccacg	gtgatcacag	ttacgtgagc	420
attgtgtgtg	tccttgaagc	gagagcctgt	tccaaagctc	ccttgctcatc	ggggttcatg	480
atactgggca	accgtcacga	atgagcgtgc	cttttacagg	atccaatttg	atttcggtat	540
atcgggtacc	tgtttgatac	aaacaacgat	attcatagtc	taatgcttat	tattttaata	600
agttggatgc	gattaccaag	cgttgaactt	cgctggtcct	tcataaatct	cagtgatctt	660
agcatcgcg	atcatagctc	ctaccgatac	tcacgagtat	agccatatcc	tccttggaac	720
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tgcaataaccg	agggcctgag	tgcgataccg	atacgtccgc	catcaagggt	tttcatggcg	1020
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aataagttcg	catgtagccg	aaccacggat	acccatctta	agctcttctt	tccgatagag	1140
aaccggggag	tccctttttc	aacgatgaaa	gcggtgtacc	acgtgtgccc	tggctcttat	1200
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tcggggcacac	ttcgatcaca	cacatttctg	tgataatcaa	gtttacttgt	cttttgccgt	1920
aagtggcaaaa	gagcattttt	tcatgatttt	ggggttaccc	tggcagtatg	ctccatagct	1980
aaaattacct	tgcgggttcc	tatcagcaat	ccatggctcc	tcccataaccg	ggtgctttct	2040
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gaatgaagca	acatcatcag	catatgtatt	ggcaccgaac	ctgcatcata	gccaagctct	2520
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tactgttgag	ataccaaaaag	agcatcgcca	ttcagttcga	ttcctttggc	aataattctt	2700
cattcggaac	ctgactgcca	agattgtatg	cttcgatcat	ttcaagcgtt	ccaaaccata	2760
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gtatgttcgc	agctgccata	acagttgaaa	aaagtataaac	cttctgtcat	tcgcggaaga	3000
acactacttg	aggattctgc	atccccattt	tcttgatggc	tgcttggtcg	cttcgatggc	3060
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tcgccatagg	cgttgagcgc	gacagatcta	atgtctgatc	gaaatctctt	ccttctgtcg	3180
aatatgtcca	ccgctcataa	cttaccactc	atattaaagt	ttttcatcag	ctcgttgctg	3240
ggttgtagta	gtgtaattcc	ttcttggtgaa	caccgctcaa	acctttcctc	cgttcatcgg	3300
gcgtttttaca	tcaccaaaaa	tacctttttc	caagcagaga	agagaccttc	ttccttcaat	3360
ctttcaagca	aattcacggg	ctgtcaagca	cttcacgtgc	tcggctctgt	acgataaccg	3420
cttctttgaa	tcaacttccg	atcc				3444

(2) INFORMATION FOR SEQ ID NO:1097

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2577 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2577

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1097

tacgaattcg agctcgggtac ccgggggatag cctgtaccgg cagagtatag tgtgggagat

aagatcctct	cccattgttc	gggcgaatca	tatttgagag	tttcgtcttc	ccctttctta	120
gggaatccac	atccctcagg	gatctcccca	agacccctaa	gggatccctc	ccgagacccc	180
ttaggggtcc	caccgggact	cctcagggat	cccataggag	actccccggg	ggtctcgaca	240
gggaccctcg	ggggtcttca	cggactgaca	acttttcatt	atcatgttaa	cccttaacaa	300
ttattcctat	gcagaactta	atccgtcaag	agccgggtca	tgagatcggc	aagcatggag	360
agaccgaagc	atcgggtcacg	gttcacaaca	tttattgtac	ttttaggcct	catttagaac	420
gctatggagc	aagaaaaaca	gtgcagacag	agtatatcga	gagcgacatc	aagacgctgg	480
aatgggacga	catattcgcc	gtcgctcccg	gatgtatata	ggtaagctgg	gcatggtcat	540
catgccgatg	acgggtatcta	tgtgctgctg	aaagaggtgc	tggaacaact	gtggacgaat	600
ttgtcatggg	tgccggcaag	agcatcgata	ttacgatgag	aatggcaccg	ttaccgttcg	660
tgactacggg	cgcggtatcc	cccttgcaag	ctggtgggatg	ccacttgtaa	gatgaatacg	720
gggggcaaaa	tcgatccaaa	gctttcaaga	aatccgtcgg	actgaacggg	gtcggcatca	780
aagcgtcaat	gctctctcca	ccgaatttgt	cgttacggta	tgccgcgatg	gacaaccaaa	840
cgcgtacggg	acagtcgtgc	cgaactcttg	gaggagaccg	atctgtccct	tccggtgagc	900
cttcgggtac	tgaagtgcgg	tttacgcccg	agacagtctc	ttccgcaact	atcgggtatca	960
ggaggagttc	gtcgtttcga	gatcaagaac	tatactttcc	tgaatacggg	attgtcattc	1020
ttctacaacg	gaagaaattc	ctcagtcgca	aagggttgga	agaccttttg	gctgagaaat	1080
gacgggcatg	gcactgtatc	cgatcattca	cctgagcgat	acggatatga	gatcgtcgtc	1140
acccatacgc	agcagtagcg	cgatgagttc	tacagcttgg	gaacggtcag	aatacgacac	1200
aaggggggac	gcactgtagt	gctttcgtga	ggccgtagcc	cgtagcatca	aagagttcta	1260
ctccaagaat	ttcgatacag	cgacattcgt	agcggcatgg	ccgcagctat	cagtatcaaa	1320
gtgaagagcc	tgtcttcgag	agtcagacca	agaccaaact	cggtagccgt	gaatggggcc	1380
ggatgggcct	acgatacaaa	aattcgtggg	cgacttcctg	agaaagaact	ggacgactat	1440
ctgcatatcc	ataccgaaac	ggcggaggag	tgctgcgcaa	gatccagcag	agcgaacgcg	1500
agcgcaaaagc	aatgagcgga	tcaccaaat	ggcacgcgaa	cgagctaaga	aatccaatct	1560
gcacaacaaa	aactgcgtga	ctgcaccgtc	cacctcaacg	atcccaaggc	gaaggaaacg	1620
agcgtaccag	cattttcatc	accgagggtta	attcggccag	cggtctatta	ctacgtgtcg	1680
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cctaagccgg	tgacggatta	tactgctata	gtgaggccga	gaagcaagcc	gcgctgaagc	2100
agctgggaag	aaagccgatg	tcacgcgctt	caaaggattg	ggagaaatct	ctccgggcaa	2160
ttcaaggatt	tgatcgacga	ggagaatata	cgtctcgagc	cggtcgcctc	aagcgcgagg	2220
ataagatcaa	ggaactgctc	actttctata	tggaagaagt	acgagcgagc	gtcaggagtt	2280
tatcatatga	aacttagtcg	tggtgaggat	gtgctttaag	cgatcctccc	gatttctcaa	2340
gaatcaaat	tgaaaagaat	atcgccctct	ttgcgggttc	gttcgaccct	ttcacacgcg	2400
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atcaatgaac	agaagcgcac	gctcttctcc	gcagaacggg	acaagagcag	atagcccgcg	2520
actatgcttc	ccgacctgct	atcggggtat	tacttatagt	gggcttacgg	tcgatct	2577

(2) INFORMATION FOR SEQ ID NO:1098

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2257 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2257

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1098.

atcgaacagc tccgttggga aaggccctgc tccgacgcgc gtgcaatagc cttgaatatc

ccgtacacat	cgccacatt	gcgaggagct	actcccaacc	ggtacaacag	ccggcacata	120
tcgtattgct	actggtcacg	aacgggtaga	accgaagtca	atgtccaaga	gcgaaccttg	180
ggctccttcg	gccaaacctt	cttgccggac	aaaagggcac	cattgatcag	aaattcactg	240
tccacaattc	aaacttgccg	agatattttg	tagcctccat	ccagcggttc	tccaatccgc	300
cagcttgctc	gtaggatagt	tcaggggaatt	cagtatgcga	agagacgctc	cttgggccacc	360
gaataggcct	cttcgaagcg	gtgttccaaa	tcccgacacg	caagccggtg	cggctcactt	420
tgtccgtata	tgtggggccg	accctttgcc	tgtgggtccg	atcttgccgc	ttcccttagc	480
catttcgttg	cagcatccaa	cagccgatgc	gtaggcataa	tgagggtggg	cttgccgcgaa	540
tcacgagacg	cttggtcaga	tcgtgaccgc	tgccggcaag	agcttcgggt	cttccttgaa	600
aagcagggga	tcgagtacca	ctccattgcc	tatgacatcg	ttttctcacc	ctggaagatt	660
cccgaaggaa	tggaacgaag	cacgtattct	ccccgttgaa	ctcaagcgta	tgtccggcat	720
tggggccacc	ttgaagcgag	cgacaatatc	gtagtgcgga	gtcagttacat	ccactatttt	780
tcctttcctt	catcgcccca	ttgcaggccg	agaagtacat	ccactttttc	cattcggtatc	840
aatgttatat	gtctgtgtta	ttattttttc	ttcttgaggag	cgctttgtcc	gccgcctttt	900
tgaggggccga	ctgcttcttc	ctgcattttg	ccatatacca	tagaggcaaa	tgatggcctg	960
cctataagag	aagcgtgggt	tctgagatcc	ttgtcggcca	gtatcgactt	cacatttcgt	1020
cggtagtagt	agaaaattgt	gcacattcgg	tacagaaaag	cagcggacac	tgctctgcaa	1080
tgaagccatc	aagtactgat	atttggtttc	gggagaaggc	aaacgcaaac	gatcccgcag	1140
cgttcgagca	aggttaagggt	attatagacc	gtagaagact	tacaggcaag	ccattctcgc	1200
gagtgagatc	gaacaagtcg	tcggggtgaa	tatcttcttc	agattatatg	cgacttcaag	1260
aatgctgtat	cgttgggggt	atgacgcaag	ccgttctccg	acacatatgc	acgcaatctt	1320
gaggaagatc	ttccagtgat	gtgactatca	tctttacaac	tgccatggca	cttcgcacagg	1380
agctacaaat	atagttcttt	tgaagaagtt	ggctcgcgagg	aaccgcgattg	gtttttatct	1440
tttcgatcca	tctctgcccg	cagagagcaa	gcagtgggcg	aatectcctt	gagaatcgga	1500
gcaagcgaat	cgaacgcacac	gtaattctgta	tcggccccat	ggcataggga	gcgatctcgt	1560
actcattgag	aggaaagtaa	tacctcgctc	cgagattccg	aaattgtccg	taggataaga	1620
tcgcccgaag	taccatagcc	catttcgttg	aggctttcca	aagaagaacc	ccttggtctg	1680
ccattaactg	cttcagagac	aaatcgggtg	gagcacatct	ttgccctgcg	cgatgatgtc	1740
tttcaaaaaga	atctgcttgc	cggtcgcaaa	tcgaggttga	gatatgcaac	gtcggcataa	1800
ccatgactac	cgccatgtat	ttgaaagctt	cgatctcata	gaccaagaga	ctgttttgcc	1860
tgaaacgacc	ttgcccgtta	tgtgatcgac	ataggcataa	agcccccaagt	cggctctgtaa	1920
tcgggcttga	gcgcaagctc	ctccttcagc	aaagggtcca	atccgacaaa	taggtggaat	1980
cgctggcagc	agcataagcc	gacatagccc	ggaaggcgac	atggatgcat	acgccggggc	2040
gaacagagca	ttcaggattt	ccgcctcacc	gaatcggcga	tagcgtgagg	aatgctgtcc	2100
gatggatttc	aaacaggatt	ttaatatcgt	tgcaaggcat	agtggagtcg	cctaacagtg	2160
agtgcaacgc	tccatggaaa	tactatcgaa	aacgatccgt	tcgcttggtt	gttcctctct	2220
ctcttacaag	atgaaatctg	cagcagggta	ccgacta			2257

(2) INFORMATION FOR SEQ ID NO:1099

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1177 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1177

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1099

gagctcggta	ccctttcaac	ttcgttccct	actacgcaa	tcttttcagc	cgctcttcgt	60
cttcatatcg	gttatattct	ttacgtcgaa	gctggctgga	agtccgagat	catcgcgatg	120
ctttcggccg	gagtcagttt	caagcgggtg	tggtgcccta	tatgttgctg	gcaacgggtg	180
ttgccatact	gactttctgc	tcaatagttt	cgttatccca	ccgggcaatg	ctacacgaat	240
tgatttcaga	caaaatacat	caagaacaag	aaggtacagt	atgccgagag	cgttagctcg	300
aagtgaagaa	aggggtcttt	gcctttttcg	gatcgtagag	cgagccatgc	gaaccggtta	360

ccagtttcagc	ctggaagagt	tcaagggcaa	gcgctcgtct	cccgtctgac	agcggatag	420
atccaatacg	actcgcttta	tactggcgca	ttttcaacta	caggatcagg	cacttcggta	480
agtataaaga	acggtcgaga	gcggtagcga	gatggacacg	gtaatagccg	tccgcccggg	540
gacttcctcg	tggcagagga	tgatgtggag	acgatgacga	ctaccgactg	catacctata	600
tatcgcatca	gaagcaaagg	ggcgtgggca	acgtcaactc	tttgagatcg	aactgcacaa	660
acgctatgca	gccatcttct	ctgccttate	ctcaccatta	tcggtgcttc	gctctcttca	720
cgcaaagtaa	aaggaggatg	gggatcaata	tcgctatcgg	tctggggctt	agctttgect	780
atatctgttt	atgaccgttg	ccggtacatt	tgccatcagc	ggatctttgc	ctcgtttatg	840
gcagcttggt	tgcctaactt	cgtgtttacg	gtcattgccg	ttccctttat	aaaaaagctc	900
cgcgataggc	agacttccgg	atgtaacgat	accacaacta	tgaaagagaa	aatacagaag	960
aatatcctca	taaagaacaa	cgtgccactt	tcgattacga	gattttggac	gtttacacgg	1020
cgggcattga	ttggtcggta	ccgagatcaa	atcgctccga	ctgggcaaag	gcggtttggt	1080
gatacctatt	gctacttcca	tcggggagag	ctgtgggtga	agaatattac	atagccgaat	1140
actctatgca	cctatacaac	catgtgctcg	ccgcgac			1177

(2) INFORMATION FOR SEQ ID NO:1100

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1047 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1047

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1100

cttgccctcg	aattcactaa	ccgaaataat	agccctttta	cttgcacccg	ctctcaatgg	60
tggcgatcat	ttcggccacg	aaattgaggt	ccctttttgt	aaagaccggt	acatatctga	120
gtcacatgtg	caccggccag	caaagcattg	agtgcggcct	caccatcatg	aatacctgtg	180
gaaagaagcg	atggattgcc	cgggcaccca	atgcactcac	gataccggca	tggcgaatcg	240
gtatcgatat	ttctcctgca	gaggtaaata	cgtctccggc	caccatctgt	acttgctgat	300
gtcgatgtcg	ggctgggtatg	agcgattgaa	aagcaccaca	ccctggctcc	tgcgcacgc	360
agcttatcga	cgagagatgg	gatattggca	aagatttgga	aagcttcacc	actacagggg	420
ttctgatggc	tttgatcaga	ggctgataat	atccacatac	atctgttcgg	ctttgttggc	480
atcgaagaag	gatcgggtatt	gagtcgcatc	acgttgattt	cgagagcgtc	ggctccggct	540
cttcgaactg	cttggcaaag	tccacccacg	aatcggagcg	gaagcagtga	tgctggctat	600
tacggggata	gccacctcgc	gcttcacttc	gcggaggagt	cgaggtgttt	ggagatctcg	660
ttgctctgta	cataggcatt	gataatctcg	ccgcctcagg	ataatccatc	ggggacatca	720
tttgggacat	ttctgctcga	tctgctcttc	gaacagtgat	ttcagtaaga	tggcagcaac	780
acccctgctt	cgagatcttt	gatggttttg	aggttgccgg	tcagtcccga	actgctgcaa	840
caataggatt	tttcaggcgc	aagccggcga	actcagtggg	caatcgatca	tatctgttta	900
ttatgaatta	cgaaaaagac	cctgcaagcc	tccccgatca	ctctcgggca	tctctgttta	960
agacagacga	aaaaacgccc	cgacaacaag	gcttcccagt	gcctccggca	catatatgcg	1020
agatgcgggt	acacagaagg	tctatttc				1047

(2) INFORMATION FOR SEQ ID NO:1101

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1690

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1101

gctatcacca	agcggttaaag	tgggttaatcc	aatgtaggagg	taccaaattg	gaaagggtgtg	60
ggtacctgca	accagaattc	ccggctacca	attcccggac	ctcaaagttg	gaagacgaaa	120
gtggaaagtt	taatatcgag	aatcaggaag	attaagaagg	ggccagcttc	gtccttgtcc	180
tcaccggcaa	gggcttgtgc	cggtctgctc	ttgggagcgc	gtgaacgagg	ctctcgaaaa	240
agacgaatcg	taaagggtcta	tgtgaagtgt	cgtaccaagg	gtggtatgat	cgtcatgtat	300
tcggtatcga	ggctttcctc	ccgggatcac	agatcgacgt	gcgcccattc	gcgactacga	360
tgcattcggt	gagaagacga	tggagttcaa	gatgtgaaaa	tcaatcaaga	atataagaat	420
gtagttgttt	cccacaaggt	gtcatcgaag	cagagctcga	acaacagaag	aaagaaatca	480
tcggcaagct	gaaaaagggc	aggtactcga	aggtatcgtc	aagaatatta	cttcttacga	540
gtatttatcg	acctcggtgg	agtggatggg	cttatccata	tcaactgactt	tcatgggggtc	600
gtgtggctca	tccggaagaa	atcgtacagc	tggatcaaag	atcaatgtcg	ttatcctcga	660
ctttgatgaa	gatcgcaagc	gtatcgtctc	ggactcaaac	agctgatgcc	tcaccccttg	720
gatgctctcg	acagcagctt	aaggtaggcg	ataagggtgaa	gggtaaagtt	gtggtgatgg	780
cagatacggg	gctttcgttg	agattgcaca	gggcgttgag	ggtcttatcc	acgaagcgaa	840
atgtcatgga	cacagcactt	gcgttctgct	caggacttcc	tgatgtaggc	gacgaagtgg	900
aagccgtgat	cctgacgctc	gaccgcgaag	acgcaaaatg	tcgctcggtc	tgaagcaact	960
caagccggat	ccttgggctg	tatcgaaact	cgtttccctg	taggctctcg	tcaccatgct	1020
cgtgttcgca	cttcaccaat	ttcgggtgat	tcgttgagat	cgaagagggc	gtagatggct	1080
tatccatatt	tccgaccttt	cttggacgaa	gaagatcaaa	cacccacga	gtttacggaa	1140
gtagggtgctg	atatcgaagt	tcaggtaatc	gagatcacia	ggaaaaccgt	cgtctcagct	1200
tgggtcacia	acagttggaa	gagaaccttg	ggatgtattc	gagacgggat	tcactgtagg	1260
atctatccac	gaagaacggg	aatcgaagtg	atggacaagg	gtgctgtcgt	ttctctgcct	1320
tacgtgtgga	aggttttgcc	actccgaagc	acatggtgaa	ggaagatggc	tccaggctgt	1380
actcgaagag	aagttacctt	tcaagggttat	tgagttcaat	aggatgccaa	gcgaatcatt	1440
gtatctcata	gccgtgtatt	cgaagatgag	agaaaatggc	tcagcgtgaa	gccaatgcag	1500
agcgtaaagg	tgaagccaag	cggctcagaa	agaagctgct	gccgaagctg	cgaatcctgc	1560
acaggctgag	agaaagccac	tctcggagac	ctcggcgagc	tggccgcttt	gaaagaaagc	1620
tttcagaaaa	ctaaaaacta	ctacggatca	tacgcgcttt	tgggcgatga	tccactttat	1680
aagagaggct						1690

(2) INFORMATION FOR SEQ ID NO:1102

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2458 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2458

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1102

ggcttctatc	tcgatgccgc	gaagcgatga	gccggtatcc	gtagtgaaga	aggattgcct	60
gtaccgcaag	agaaaatggt	cacataaccc	tgttcgagaa	ttctatggca	tgccatttgt	120
tgtagaactc	ccctatcggc	tccatactac	ggccgtgagc	acttttggct	tcacccctac	180
cccctcaaga	gcagagtggag	agccaagctg	ttgattaccg	tggccagcat	acccatctga	240
tctccttgac	acggtcgaat	cccttggcgg	caccgctcac	tccgcggaag	atatgcctcc	300
tccgatgacg	atgccgatct	gtacgcccac	ggcacaagcc	tcctgatgtc	cgaagcataa	360
tcggccaacc	gattcgggtc	gatgccgtat	tgtgagcacc	catgagcgac	tcaccgctca	420
gtttgagcag	cactcgttta	ttgcagtcac	tattcttttc	tatcagtttg	ttacaaagaa	480
aagcatattt	ccatacccca	ttcgtcgata	gacgctgtcg	aatggctggt	ttcaactccaa	540
cgagagagca	tctcttcgcc	gagagcacgc	tttttcggga	tgtgctcccc	acctcgacga	600
tgaagggtat	gcttttcgaaa	tcgcctcgca	cctcatcaaa	tcgcggtggt	tcactctccc	660
taccaggtct	attccgaagc	ctacctactg	tgcatcttga	attccttctt	ggcctcctca	720
tagagcatct	catccagcga	atcaccgaac	gcacccatgt	atgcaccagt	tcggctactt	780
tggacgagtg	agatcctcgg	ggttcagttc	gtaccattcg	agcagagcgt	tgttgcccag	840
caccattcat	agtcgtagta	tcggctatga	atttccttca	tcgctcattc	acctccgcaa	900
ggcttttgat	cttgcccttct	ttgatcaagg	agcaaggcgg	tggatctggt	gttgtggagc	960
gatcatgccca	cagatgtcca	ccagctgccg	tctccctcat	tgtgagtcgg	cttgagagca	1020
ctcagcacc	ctcatccgta	cggcaaggac	aatcttcaag	gcgtttgatg	atggaattcc	1080
gaaaaacttg	ttcagcccca	tctcatagaa	catcagcccc	ttgtccaggc	agaagaacgt	1140
atgcgcatac	catgatagac	ataggtttgt	ccctcatgcc	cagtatcttg	cgtagctttt	1200
tcagcttccg	actgccgcgc	atcatttgcc	ggcagtgaaa	ggactcaaga	gattgaagtt	1260
gatattgtcc	agcaatccgg	atctttacgc	ttatctctcg	ccggccactt	cttggcgctca	1320
cgatcgctcc	cacactgcgc	agattgatac	ccggtaccaa	atacgattcg	ttcggtcctc	1380
tatgatataa	gagaagggga	aggccgagct	gtcaatatgg	ttacgtgtcg	acccatcacc	1440
aacgtgaaaa	ggccctattc	tggatggcca	aggatataag	agtcgctcgt	ggtcttcgag	1500
ccgcgctcca	cgatgcccta	tggatggggc	cgagcttgta	gaggtgattg	ctctgggttag	1560
agccgctgcg	gcattgagga	aagagtatag	accggcaatg	agcaggctcg	acttgtgatc	1620
gacacggtat	atggcccggc	aaagacggca	caggcctcgc	cgttttgcct	tggcagttgg	1680
caaagaaaaa	cgaatcatgt	gcagagaaaa	ggtgcccata	tgagtaccct	gccctacaaa	1740
acagtgcgaa	acggtagcac	catcgtaacg	ctgctgcccg	aacagagaat	gaaatcgcg	1800
cagacgacat	tgtgcctacc	gacacggggg	cctctttctt	gctattgata	ctgccgttgc	1860
aggatgcgag	gcaccggtga	tctcgggtata	atctccgata	caaacattct	catcgtattg	1920
catccgtgga	taaccacatg	agagcctatt	gctc'ccatat	cgaccggcgc	gactcggcat	1980
aagctcttgc	catagcagca	agcgattcgt	cagcaccttg	tcattgcctgt	acatggccat	2040
cagataggcg	gtctggggcg	caggtttgtca	gtgatcgtaa	cttcacgtcc	gccggtttcg	2100
ttcagcaggt	aacctccacg	ccgttgccga	aggaggtgga	ttccggttacg	gctatgtatc	2160
aatgttttgc	attcgggtat	aatcgcttat	tctgtaatta	gccaatagct	attgacatgg	2220
aagatgacga	cttcattccc	gacaatgcag	ttgtcaggcg	tgcgatattg	ataccctgag	2280
gcacgtggag	gcctcccggc	aacagtgaact	tcctcgcggtg	gatccgatcc	ggatctgtcc	2340
gctgaacatg	actgcagaca	acgattcgcg	tcaaagccat	cggccacctc	caccatcgte	2400
catcggcgca	ctggcagtag	ttgccttcca	gcacggatat	ttcttcttcg	tcaaatgc	2458

(2) INFORMATION FOR SEQ ID NO:1103

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1041 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1041

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1103

aaggaaacta	atcctatcta	actctcaaaa	tcaactaaac	gatatgaaat	attgggtattg	60
aactgtggta	gttcatccgt	caaatataag	ctactcgaat	gcccacaggga	gacgtatttg	120

ctcaggccgg	agtggaaaaa	ttaggcctcc	cggtcattt	ctcaaaactaa	ccatgccc	180
tggtgagaaa	gtggtgtgga	gaaagatatg	cccgaacata	cgatagccgt	agagttcatt	240
ctttcgtgct	caaagatgac	aaatacggat	gcatacaagag	ctatgaagaa	atcgtgcagt	300
agggcaccgt	ctcgttcatg	gaggtgagaa	gttcagtaat	agctggagat	cacaccggaa	360
gtaattgcc	aagtagaaga	atgtattcct	ttgctccact	tcacaatccg	gctaacctca	420
aaggcgtcgt	agccatcgag	agttgctccc	cggtattcgt	caggtgggtg	tattcgatac	480
agctttcttc	aaaccatgcc	ggaacatgtg	taccgatatg	ccttgccata	tgatatgtga	540
acaagcatgg	tgtacgtcgc	tatggattcc	acggcaccag	ccatcgcttg	tcagtgtccc	600
tgcttgtgag	atcttgggtt	tggactacga	caaaaactgca	taatcacggc	acatatcggc	660
aatggagctt	ccatcgctgc	aatcaaaacg	gcaaggcttt	ggacgtatca	ttggggatga	720
caccgcgtaga	agggctatga	tggttacgcg	cagtggagac	gtagacccc	gtgttcttac	780
cttctgatgg	aagcagaagg	cctcgaagca	gcaggaatct	ctgaactgat	caaaaaaaga	840
gcggtgtact	tggtcgtaac	ggtgtgtcct	ccgacatgcg	cgaatcgaag	atgccatcaa	900
gaatggcaac	gaaagagcta	ctctggccat	gccatgtacg	actacaggat	caaaaaatat	960
gtaggagctt	atgccgctgc	tgggaggagt	cgatgtgctc	gtattcaccg	gtggagtggg	1020
tgaaaccaa	taccacgaga	g				1041

(2) INFORMATION FOR SEQ ID NO:1104

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 630 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: FORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...630

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1104

gcttggcact	gaaaggacgg	tacaggtgca	cgctgagcag	tccgactttt	ctcctttggc	60
acggaggaag	tctatcactt	cgcgaaatga	ttctgtcacg	aacccatggc	aataatcaca	120
tgctcggctt	cgggatctcc	gtaatagcga	acagatggta	gtggcgccc	gtaaccgtag	180
ccagctgac	catatatact	gaacagcttc	gggcactgca	tcgtagaagc	ggttacatgc	240
ttcgcgcttct	ggaaatagat	gtcgccgttc	tgtgctgtgc	cacgagttac	gggcactcag	300
gattgagagc	ttgcttgccg	aaacgcctta	catcgcccca	atcatgaacc	gggctaagtc	360
ttcattgtcg	agagcttcga	ttttctgaat	ctatgagagg	ttcggaaaacc	atcgaagaag	420
tgaatgaagg	ggatgcgagt	agtagcggtg	ccaagtgtgc	cacgccggcc	aagatccatg	480
acttcctgca	ggatccggta	cagagctgag	caaagccggt	ctgacgtgca	gccatgacac	540
ctgatggctc	ccgaagatag	agagggcatg	ggaggcaata	gtacgtgcga	aacgtggaaa	600
acacaaggta	gcaactctcc	ggaaatctct				630

(2) INFORMATION FOR SEQ ID NO:1105

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4319 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4319

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1105

tggcgagaag	atgatcttcg	gtgccaatcg	cgataaagga	atcgtattga	aggtctcaag	60
cttcgtgccg	ttacgatagg	cgaagacggt	tacaccctga	tgacgtactc	gtgcacgata	120
agtatgagca	ggacgtaacg	ctgcacctct	cctcgcaatg	atggggttaca	cggatgatag	180
tatgcctatc	gctctcgtgt	catccgcgac	gtggaagcac	cctgctacga	cagagcgggtg	240
gaagccagat	cgaagagatc	cagcagaaga	accccatacg	caagctccat	gatccctcat	300
ccaaggagac	gtttgggaga	tcaaataaag	cagtttagac	gatagtaccc	aaacgggtag	360
gattcgacag	aaacctttcg	gggaggatgt	cgttcctacc	cgtttctctt	ttatgggacg	420
agtgtagacc	ggttattcga	cggggtcggg	gattgatcga	gtataaaaagc	agggagccat	480
gccgaaagat	gcggtatggc	tcctgtctag	tcagattatt	tgtgtctgaa	atacttccgt	540
acgagaggag	ggtcagtcct	tggcttccat	acagtcctcg	gagggttcag	atttcgaatg	600
cgccaatcct	gcggatatag	attgttggca	cgtgtgcgag	atthtttcagg	aagccgagcg	660
gccttctcgc	gcgagtgccg	aggacyagcc	gagcggcaga	tcgggcatgg	tggtcacaga	720
ctgtcgggcc	aggtagagag	agcttcatct	cgtgaaaatt	ccatatcgaa	gaatgagtg	780
tcgtcatttc	cgtggacaaa	gccagagccg	gagccggtag	aagatctttc	ccctctgcat	840
ccccactgtg	atccctgctg	tgtgcagcct	gatgccattt	gcttgagaca	ttcgaccatt	900
tcgagcacat	tgggagtaag	agcatgcaca	tctcgtctcc	catccatcgc	cattcgtatt	960
tttcaggggc	atgtacgaag	atttgatacc	atgaggata	tgcttttctg	cgtttttctt	1020
ttccttgctt	tgggttgctt	atgccttacc	gattctctct	ccggtttgcg	aacgaggcga	1080
agaaaaatcc	ttcaccgcga	actttatgag	ggaagaaacg	gtatgccgtg	cctcaccttt	1140
gagttgaggg	gcgatctgcc	attcgggtgag	aacatcaaag	ccacaggctc	cgctccgaaa	1200
gtatcgatga	ggaaggccag	attgtttcgt	tctcaagcgt	attgaaggta	caggtgctgt	1260
atgccaagag	acctccggct	gtaacatttc	ccatgcggca	gagaggatac	gctgctgcct	1320
gcggcacaaa	gtccacatt	ttgcaggctc	cattcggatc	gagtagcctc	atthttacgga	1380
acatgccttc	tcccagacaa	ggagcatcga	ccagaatgaa	gcgaaagtct	ctcctgcgga	1440
tttcaacctc	tcgggatctg	cttcggtgac	ataccggctg	gatagcccca	cttgatcatg	1500
ttctcagcca	gtatattggg	cgatgggtgga	tcacttcatt	gctgaccaat	acactgcctt	1560
cgggcaattg	ttgggttagga	gtgtgctctt	tcgcgccggg	gaagcgcaga	gatccaagcc	1620
cggacagggtg	attcgcgcgag	cagaggtttc	aactgccaca	aaaacaggaa	gaggcttccct	1680
gtacatagta	gectccggca	tggaaaacccg	gatcatggtg	aaggaaaggcc	tctcagccag	1740
atatgtaccg	agggacaccc	agggacagac	ttattgggtg	gcagatccat	tacagtggta	1800
ccgatgcccc	gttattagga	ttgcgaacga	tgcttacagg	tgagggctg	tcgagagctg	1860
caaaaaagct	tcggcttcgc	tccttaacag	tgggcgcata	gcggagacaa	atcttgagggt	1920
agtgggtgca	tctattattt	atagagtaag	aagatagttg	aattttatgt	agtgcaggct	1980
tccttttctt	ccattccgag	agggtagcat	acgaatcagt	tcgtcgggac	aggagatatg	2040
ggaggcaatg	catagtttgt	cgtcggcccg	cagtggcgaa	tgagttcgtc	caccagtttg	2100
tcgtttcata	aggtgtttcg	atgaagatct	gcgtctcgtg	acacttataa	atccgctctc	2160
catttctttg	aaagcagcca	aacgctcatt	ttctccgatg	ggcagtagcc	tttgaaagcg	2220
aagctctgac	cattgaagcc	ggaagccatc	agtccatcag	gatcgaactc	ggccccacga	2280
gtggctccac	cctcaatccc	ttggctgtgc	gatggctacc	acatccgcgc	ccggatctgc	2340
tattgcagga	caccggtctc	ggagataaac	cccatgctct	cacctgcagc	catagggtgg	2400
aatagggtact	gacctcctct	gccgatgtat	gcttgttagg	ttcgtagaag	tgagcgaaatc	2460
tatatcgata	gatcggctcg	ccgttttcag	gaaacgcagg	ccgaacggat	attctctaca	2520
atgaaatggg	gcaggctcgc	gacgatcgcc	tgttgtattc	gggcagtacg	cggctgtgct	2580
cggtttcgcc	cagcgggtccg	gaataagata	gagagtggga	ttgttttcca	tcataatcgg	2640
gaaagggtacg	ggactaaaaa	aaggcttttt	ttattcgtga	agattcgtga	gctgtcggct	2700
aatagtaccg	tactgcctca	gataaggcat	ttcactgcgg	agatagggtc	gaaagtcaga	2760
cccgaagct	gctcttcgat	ctgatccacc	ggcaccactt	cccggctcgc	ggatccttgt	2820
cgcacaagat	cgtatttcgat	tcgacatgtg	agccaaatag	agatagacga	gtcgggtctt	2880
tcatttttca	tgtggatata	tcgcagagaa	agtgcggtct	cagacgattt	acaccgcaga	2940
tcgttcgtct	atgagacttt	gagccaattc	cttgtgatgc	ttatcagtat	cagccacgaa	3000
aagaaagggg	tatcatagca	gtcgcccggtg	caaagatcca	tttgagtaa	tggctcaaat	3060
agatcatccc	gtcgcatatg	gctatcagcg	aacgacgggc	agcagacctg	cagtaggatc	3120
ggccaaggct	tcctgtccgga	tcgtgctata	cgtcggatgg	attcaccctg	tgcatccgtg	3180
atcggtatcca	ctcctcgtgg	tgcatthtct	tacgtaccca	ttcaggtcga	atcactcata	3240
tatatagagc	ataaacagcg	atacaccggg	cagatacaat	aagggtgtgc	aatcctcccc	3300
accctgaagt	agagcaaaa	tcccagaagg	aaatgaaaaa	taacgatata	cgcaggatgc	3360
tgctgtaat	gcgtccatac	tcagcatgac	cagacgtttg	tcgggacaa	ccgcatagtc	3420
tcctctctctg	cactgcttct	gcggaacagc	ctgcacgcag	ctacagccaa	gagcatagcg	3480
ccagactcca	gccaaggctcg	gtgagcgggg	aagtcttgga	tagccacaag	taggtagcaa	3540

aagaacaagt	acacccagcg	aagtcaatac	ggacggcgac	agttcttgct	ttttcgacga	3600
aaaaagagca	tccctccgat	gattgcaaga	gagcaatggc	agccgtccat	gccaccatta	3660
tccccgcact	cggcacaaca	ggagcaataa	gacgaccggc	agaaatccac	ccatcggatt	3720
agacccaata	agggtgctat	atccggatac	ttctttgtag	tcaaaatagg	gatcgttttt	3780
tcgttttatca	gtataacagc	catagacccg	tttggttgtc	atcggcagta	cacactgtat	3840
tatgaaaacg	attgagggct	gactccggga	tcggaaccag	cccttatcgt	cataccctaaa	3900
caaatgtatc	tatcagatat	aagaaaacaa	acgggtattg	ttttccacca	aactcttgat	3960
ttttccctca	gatccggagg	caaagaagcc	tcggacagca	atcgggctat	aggctgcagt	4020
gatgtatatc	tgtccctatg	agatcgtaat	agccggcctc	gagtaatcat	atgctttttc	4080
tgatgcagat	gaattgtatg	ctccgaacag	agaaaaaggt	tcagttgaaa	cattacgcct	4140
tgctttttga	tcgcgacata	atctttctct	ccatgtatag	ataacgttcg	gggtgtgcc	4200
atacgggaga	gaggctttga	atcgcagatc	ggcaagtagc	ccattaatc	ctataggagg	4260
agcatatagg	aggtttccac	caaaatgtaa	cgatctccca	gcgtcagaag	cgttctgcc	4319

(2) INFORMATION FOR SEQ ID NO:1106

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 412 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...412

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1106

tttggaacc	gatgctccga	acttatctcc	ctaccatcta	ggagtttccg	tacacagcct	60
tcttggtgat	cctaagtctc	aagtccgtga	atacacctct	ccatctgtac	ctagtgcact	120
gagcagggct	tccnntgacc	accgntatt	cgtgattccc	tgcttgctct	tcttcccgaa	180
ggataagcat	ccttttatcc	aaaagtcaca	gaaagcatc	tcggtaagcg	catgataata	240
accgaactgg	ccatgtgtcg	gtattttctg	aatagtgaat	ggctcacctt	gcgttgggtg	300
tgaatgtctt	ctaccgaata	gaatacaaat	acgggcaatg	gccgtacctc	ccctcatctg	360
ttgcataccc	ctctagtagc	ccttttggtg	tatctctgat	ggtcttggtg	gt	412

(2) INFORMATION FOR SEQ ID NO:1107

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2512 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2512

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1107

ggtattgccc	ctctgtggaa	ccatttctac	tacgacaccc	ggagccaaga	tttgtcataa	60
acggaatcga	caagttcgta	gcgaagatta	tggctcgaag	caaacgctct	gcctccttca	120
agtctttgcc	acgcaactcc	ggcatcagat	agagctgtcg	tgtctcgtgt	aaatatccag	180
tccgaacaag	ataccctgag	gataagccct	gaagccaaag	tcatcaaaat	caggtggaag	240
aggacggata	tttatgatga	aaattcttta	gttgcattgcc	aacggaatat	ttttgttcca	300
aaatacagtt	caaagtacgg	aaaaaagcag	caaacagaaa	aacgtggcct	gtcccggaaa	360
tgggttggca	gccgggagcc	gttaattcga	atttgctttg	cagtcttcgg	cgtaaatacct	420
aatcggcggc	tttatccgga	tattaaggtg	gattcgaatg	cgacaagctg	catccatttt	480
ggaggcattg	tgccaaacca	ttgctcctac	agatgaatgc	ctacagcctg	ccgggtgcca	540
aatacgaacc	aaaaacgggc	ggattgtggc	gcgtgttttc	tgaaaatggg	cgtgagaatt	600
tttctgtttt	ggagcgaaaa	ttttttgctt	cccacacaaa	acgaaaattt	tctcgcctta	660
cgtttttcgg	agcgtacaat	aggaaagttt	ggtgtgacgt	gtgacgtgtc	ctgaaaaaag	720
ctactccatc	ctgattgcct	tgtgcatatt	tcccttacca	tcaactatatt	ttctgtagtt	780
ttgtccgctt	catcaattaa	aaacaacaac	aatatgtttt	ccggaatcgt	agagaatatg	840
cccaagtga	ggatctccgt	cacgaaaatg	acaatctgca	cacacgatga	cgtgttcttt	900
cgtcaatgaa	ctcaagatag	accaaagcat	ccacacaatg	gcgtatgcct	caccgtagtc	960
agcaagacgg	acaccaccta	accgtgactg	ccatacgcga	aaccttcgaa	cgttccaacc	1020
tccgataccc	caaataggcg	atctcgtcaa	tctggaacga	agcatgatga	tgggcggcgg	1080
ctcgatggac	acatcgtgca	gggacacgta	gatcagacgg	ctgtatgacc	gctgtggaag	1140
aagccggcgg	cagtcactac	tattcgttcg	aatacagctc	gacaaggaga	tggctcgcca	1200
aggctatatg	accgtggaga	aaggaccgta	tgcgtcaatg	gcgtgagcct	gaccgtatgc	1260
gactccggca	tgaaaacttc	cgtgtggcta	tcatccctta	tactcgcgac	catacgaact	1320
tctccgcatt	gtctcgggta	gtgtgggtcaa	tctggaaatc	gacattgtgg	ggaatatctc	1380
agcaagatgc	tccaatacca	atgaacccga	acgactttta	cccctgatcg	aacagcgaca	1440
gagcgatcgc	aagttcgatc	ccgaccgccc	gtaccggaag	acgtgcttca	gcgcatactc	1500
gaagcggggc	gtctctcccc	tcagcctgca	attcgcagcc	ttggagcttt	gtcgtcgtca	1560
ccgatccccac	actcgcagac	aactggctga	agcctcatcg	tcacggttat	tgggtataat	1620
cacttcacgc	gtcaggctcc	cgtacacatc	gtattagtcg	aagagaagcc	aacttcacgg	1680
cgaccatcgg	ggggaaaaatg	aaaaaaaatcc	actatccaat	atcgacctcg	gcatagccgc	1740
cgcacacatc	acgctggcag	ccacgcgcaa	ggtctcggca	gctgcatcat	aggctgggta	1800
aacgaagcca	agaccgcgaa	atactgggca	tccctccggg	acgccgcgta	gtcatgaaca	1860
tctgctcggc	tattccgcgg	atccgcacag	ggccaagaag	cgcaaagaaa	ctcggaggtt	1920
cttcaccgcg	agaagtggta	ggctctctcc	tccctccgcc	cgaagagggtc	acatacatag	1980
tatatagtat	agctcattat	gtacgacatc	aaaaaatcag	ggaggacttc	cccatcctcc	2040
atacccggtg	acacggtaac	ctctcatcta	tctggacaat	gccgccacga	cacagaaacc	2100
catagcgtat	cgaaccaa	cgaacgagcc	taccgcacat	tcaatgccaa	tatccacgcg	2160
gcgtacacca	tctgagtcag	gtggctacgg	agcaacacga	aaatgtcgca	agcggatagc	2220
ccgtacatc	ggagcggaag	accccaaaga	ggtgtcttta	cgcgcggcac	cacagaggca	2280
atcaatctgg	tggcctcttc	gttggccaag	ctttcgctccg	ctccggcgat	gagattatca	2340
tcagtaccct	cgacaccatt	cgaatatcgt	cccatggcaa	cttttgcccg	aacgtaccgg	2400
tctcggctca	gagtgatccg	gttgaccgaa	tggggcgaa	tggatgtgga	catttcgggt	2460
ctctactgaa	cgaacgtacc	aaaatcgttt	cgatagcccc	gtcagcaatg	tg	2512

(2) INFORMATION FOR SEQ ID NO:1108

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 735 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...735

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1108

gggttccatc	cttggacacc	agacgatcgg	cgatataagg	tttgagaaag	ccttgcgccg	60
gatctccgcc	aatccggctg	aatcggaagg	aatctcttcg	gtacgatctg	ctcgatggcc	120
atccccctcct	catttccgat	cataaaccta	tgctccgtaag	tgaagtaatc	ttttcggcat	180
aggaaatact	gtcgagatct	cgttggaaag	acgacggatc	agctccagat	tttctttcgt	240
gaaggattgt	cacagtcggt	caatacacga	gcatagttat	cattggccgaa	aacgatttga	300
actcctccgt	cttgatgac	ataggatcgt	cctcgagaaa	atatcctccc	aagagggtttt	360
gatactaagg	aaacgcaatc	cattgaatcc	aaaaggagaa	aaaagaaaaa	acctcccaat	420
acaatccaac	gcttgcggat	atccattcgc	cacgatggcg	aaaccacctg	ttaatgctgt	480
ctattttcat	gctttgtctc	gtttgtgttt	tctgtattcc	gtattatagt	catatctgct	540
cagtgtctgc	cagccggccg	taccgaaaag	gatataattcg	gacagacctg	atttatctcc	600
tcttcgggat	gaatctcatt	tgttattatc	tcgatgaaac	attgaccac	cacgcgcc	660
ccaatcggat	aaagaagggg	cttaccgggt	gttggcatgt	gggtattttt	ctttgaagag	720
ctgcagatag	ttttc					735

(2) INFORMATION FOR SEQ ID NO:1109

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1977 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1977

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1109

acaaggaacg	atattgcccg	tactggattt	caaaaccgaa	aaggaaaatt	gttcaccttc	60
aaaaatactg	ccaatctcaa	tctgctgata	aagcacggca	agtaatcaac	ttaattaata	120
agcttgagtt	ttctacctat	ggcaataagt	aaccgtaagt	ggaggatatg	tacacaccga	180
ataccgctat	ttgttgatca	tgtttttgag	gtttatcctt	atgtcgagtc	gcaatgggca	240
gaaagagagg	aatgaaatat	aaggtttcta	cgggattaca	gtcgcgttat	cggcggtaaa	300
tagtgataac	tgtctcatgt	ttgcaacatt	gggggtattt	ttcaattcga	aaagtgggaa	360
cagccagcca	ctagcctctt	tgcaggaacg	tagcatacag	ccgaagtatc	aaaagccacc	420
tgtctatcag	tttcagacat	cgttgggtga	acattgggaa	tttacaacta	cggctattca	480
ccagggaaaag	ctgacagtta	ttttaagaag	gcacgttttg	gaggagctat	cgacctcaat	540
accatatcac	acctacgata	ggaatacgcg	gggcctatcg	gatcatctcg	atactgcccc	600
tattgtacct	gtgcggaaaag	attacaacac	cgttgatttg	gtatcgatat	ttcgttttta	660
gcgagtagta	tatgacagat	atgatgttca	aacgccacag	ggagagatgg	agatgcgcct	720
gcaagaacaa	gaagcgtatt	tgtcaagaag	cgcaccggag	agaaccagg	catagctcca	780
ggatattacc	tatgtggatg	tgccctaagcg	taagttcatc	ggctttctta	gtgtgactta	840
gaatcagact	agcgggaggt	cattgaaatc	tatcgcaaac	gtggctcata	gagcgactct	900
tcaagcagat	taagcagaac	tttccctga	atacttcttg	gagatcgttg	cacaatataa	960
ccctctaccc	cttcatattg	tcaagacaga	tacaagcatt	gatttgacga	agaaaggagc	1020
gcttcatgcg	tatctgcaaa	cctcaagtat	acacctctga	tggaagcttg	gggaaattct	1080
gtttactcgg	tgcccatata	cttgagattt	gacctttcct	gaaaacaaag	gaatcagccc	1140
tgcagcaaaa	gaattcaatg	aaaatcccg	gcaacatctc	aaaaaagaga	agctgcctct	1200
ttcggaaactg	ttccgggagg	cagcccttgt	ggattcatct	caatttcaat	agcaaatgg	1260
tctctgggtt	ttcaaaagtc	ttgagctttc	cgccacaaa	agtcgtgcaa	atcgaataaa	1320
ccgcaaagga	aaaaatatgt	tgttcagcaa	gttcaccggt	atccacatgt	cgaagcggt	1380
gcagaaagg	taagaggact	cttcggttat	agcctgaaac	tacccttacc	atgacaaagg	1440
gagtagccca	gccggctgat	acttctgaga	caatgcaaaa	tcgcgctgaa	caaagaagcg	1500
cgctccaaga	tgaataccga	gacaaaagccg	gtatcattgc	cgaaatagcc	tcccagagtc	1560
tgaccttaata	gccatcgaca	gcagaagcca	gctgatagtg	aaagtcta	ttagtggtaa	1620
aatgatggca	gagaaattgt	gttccgtgcc	gtaatagcca	aggcgactcc	tacagtaatg	1680
gcgcctttgc	ctctggcaag	accgctgatg	ataccgtttc	gagggtctacg	gtgggcataa	1740

atgcagccga	tccgtgatga	gaacgatacc	cataccgacg	ttgagcgaaa	cgtcaccctt	1800
gcggatagca	ctcgagcatt	cattgagaat	atgccggcca	agatgatagc	cagactaaaa	1860
atactttttt	catgttggtt	tcgttttttg	acgttttgatt	gtctcttcta	atttttgatt	1920
tgttttatcct	gattctgatt	gtagtcagca	aggctttcag	tcttcatttt	ctatcgt	1977

(2) INFORMATION FOR SEQ ID NO:1110

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 348 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...348

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1110

ttcccagttt	gccactgcag	aacgcagcag	cttntctaca	cgtgccgaac	ttctttgtta	60
gagaacttca	gcacacccaa	ggcgcgattc	acttccatcc	acgaatcata	tcggggccacc	120
aatctcatct	tgcggggaga	agtaggccgt	tacgaagctt	ggcaaagtac	atctgcttga	180
gggcttcctt	tcttgctcgg	ctgaattatg	tttctctgca	cccattgttc	ttaatacttt	240
taattttcag	attcctgaag	tgtttgatt	caaccgaatt	acttcttctt	gttacggcat	300
gaccacggaa	agtaccgtgt	aggagagaac	tcccctaact	tatcccac		348

(2) INFORMATION FOR SEQ ID NO:1111

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 886 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...886

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1111

cctgacatca	tggaatgga	ttgtagcgag	tgtattggcc	tgtttgcctt	cgcttatatt	60
tatatccaac	gccagtcccc	gatctatcat	gcacaggcac	cgtgctgac	aaaagtgcag	120
agaaaagcgg	tgcgacaagt	ggcctgcgca	gttccaggaa	ctcggcctga	tgataggcaa	180
ttcggaaagta	gagaacagat	tctaattgctc	aaatccaagc	gtttgactgc	tattgtagtc	240
gacaacttga	tctggatgta	tccatataca	aacaagggtt	ttggcgcaat	gaatgttgta	300
tggcaatagc	cccgtaaagta	ttcagattac	tgacagggat	tctcggagaa	ctattccttt	360
aggattcaga	tcaatgatgc	acattctttt	cactgaccga	tctcgagcag	aaagagcgta	420
atgggatagg	cgatatcaaa	aagacggctc	ttttggtcgg	cctattgcaa	ctcctgtcgg	480

ggaactaaaa	tgaatacgc	actcttcttt	gccgattcat	ggaagggaga	agtgctatag	540
tgacgaaa	gaatactcgt	aaagtggtag	agcgttacaa	tcaggatcgc	aggtgtcatt	600
ggcagacaag	aaggctacga	tagtcaattt	gtcattgaaa	acgaagactt	ggatcgtgcg	660
aagaatttca	tcgatgccct	tatcgctcgt	ataacgacga	tgatcatgaac	gacaagaaga	720
gtgtcgctgt	cagtaggctg	ctttcatcga	tgaacgtttg	gccatgatcg	gcggcgagct	780
cggccggtag	atacggagat	cgaacgttta	agaaaggata	atatcaccga	tattctaccg	840
atgtaggcac	atatctnaga	gcagtgcga	tctgcanaag	acagct		886

(2) INFORMATION FOR SEQ ID NO:1112

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2151 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2151

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1112

ggctcatatt	cattcttcct	ttaacaacat	tattatttcc	ttagcgaacg	cgaaggtcag	60
ggtatcagct	ggtcttcagc	cggtaaaatg	ggatttcgtc	ttcaaagaag	aatactccct	120
atgctgccc	gatggcagct	caggatttgc	caaagtggca	tatgatattg	gcttgccgaa	180
ggtaacggtc	tacgttaggg	cccgggtaat	ggtcgtgaat	cggtcattag	aacaattcat	240
ggagcggaa	cgaggttatg	gagattattg	atgtaacgcc	tatgcctcat	aacgttgtcg	300
tcctcctaaa	aagagaagag	tttaagagag	aagatcttct	aactttcgga	cgctctattt	360
tatgggatcc	gaattctttc	ggtgtatgga	ttcctataaa	ctatcaatct	ctcacatagc	420
aatcgcggt	gtaccggaag	cttctgttca	tagaaaagca	tctgacacaa	aacaaacaat	480
aatggcaaga	atacagccc	taaatccaag	atcgcgcgta	agtttgccga	tcctatcttg	540
gtgcagataa	agttctttcc	aagaagaatt	atcctccagg	tcagcatgca	ataaccgtcg	600
tcgtaagacg	agcagatag	gcctccagct	tcgtgaaagc	aaaaagcaaa	atatacttac	660
ggtgtattgg	agaagcaatt	ccgtcattgt	tcctatcgtc	acagcgcgca	aagggtgtaa	720
cggtgtgagtt	gcttatcagt	tccttggaagc	acgtttggat	aatgtgggtg	tcctgttggg	780
gattccccga	cgcggtctgc	tgacgctcaa	ttgggttccc	atcgctatat	tacgtagatg	840
gcagtgttgt	caacattcct	tccttattctg	tttaagcccg	tcggtgatcg	gcgttcgtga	900
gcgttctaag	tccttagagg	ttattgctga	tccttgacag	gtttcaatca	cagcaaatat	960
ccttggtatg	agtgggatca	tcgtcattgt	ccggtaaagc	gctgcatatg	ccggtatcga	1020
cggacatcct	gaaaatatta	aggaacagct	gatcgttgaa	ttgtattcga	aataatccta	1080
gatcccatgg	caatattagc	atttcagaaa	cccgaaaatg	tattgatatg	gagacgtcgg	1140
actcgatcgc	caagttcgag	ttcaaaccct	tggagccggg	tatggtatta	ccattggcaa	1200
tgcgcttcgt	cgaatactct	tgtctcgctt	gaagggtttg	cgattactgc	aatcaagatt	1260
gaagggttag	agcagaattt	gctactattc	cgggtgtatt	ggaggacgtt	actaatatta	1320
tcccaatctc	aaacaagttc	gttttaagca	gattgttctc	aatgccgatg	taagaaagct	1380
acaattgtta	tctctaattc	ggaggtgttc	cgtgccgggt	attgaatgca	caactttcaa	1440
actttgaagt	gttgaattcg	aatcttgtca	tatgcccttc	gataagtcgg	ctacgcttac	1500
tatggagttt	tccataaata	ggggcgtggc	tatgtgtcgg	cagaagagaa	tcgcgcagag	1560
cataatgact	ttccacgata	gcgatcgact	caatctatac	gcctattcgg	aatgtcagta	1620
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accacagatg	gttcgatccg	tcctgtagat	gctctcgtga	agcagctcaa	atcttgatat	1740
cccacttctc	tctgtttgca	gagataagat	agcgatagag	tatgtggata	tagtcgatac	1800
tgatgagttc	tctaagattc	tctgcatatg	cgtcaactat	tgaagtcaaa	gctttcaggt	1860
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tttagtgagt	ctgtcacgga	gcgatctgat	gaagattcgc	acttcggaaa	gaagtctttg	1980
actgagcttg	acgaactgct	ggcaacgcta	atattgtcgt	tgggatggat	atcagtaagt	2040
ataaattaga	taaagactag	aacgatgaga	cataataaga	aattcaatca	cttgggccgt	2100
aaggctgtca	ccgtaaagcg	atgctgtcca	atatggctgc	ttcgttgatc	c	2151

(2) INFORMATION FOR SEQ ID NO:1113

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6231 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...6231

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1113

tggagcacia	ccccgtctcg	gtcatcgcg	ttgccgtctg	ggtaatacca	tccggagatt	60
acggagatgc	agacacgtgc	catcctcggt	gcttgcttga	gctgaagaag	gaagggtgtag	120
tctgtctgcc	tgagatcatg	gtgcctcgac	ggggatcctc	catgagttca	aacatcagga	180
agaggtaatc	cgtgctcggc	tgccaagctg	ttcgaagaga	agggcgacag	tgtggaattc	240
caagtggtag	gatgatcgaa	gtaccgctg	ctgcccttac	ggcggacaga	atcgctcttc	300
ggccgagttc	ttctcattcg	ggaccaacga	ccttacgcag	atgctttcgg	ttactctcgt	360
gacgacatcg	cttcggttct	ccccatctac	ctgacaagaa	gaccccgaaa	gtggatcctt	420
tccaggtact	cgaccagaaa	gtgtaggcca	gctcgtaaga	atggctacgg	agaacggccg	480
caaggctcgt	ccaatctgaa	gtgcggtatc	tgccggtgag	acgggtggtga	gccttcgtcg	540
tgaagttctg	ccatagagtg	ggattgaact	acgtatcctg	ctctccttcc	gtgtgcctat	600
tgcacgattg	gcagcagcac	aggccgttat	cgaagaagca	aataagaaaag	aatacgttag	660
tctcttcgac	tcgtatgaag	aggctgcacc	tatcggttta	ttggagaaaag	agcaagtccg	720
attcgctcgg	cttgcccttt	cttttttgtc	cccaatctcg	gttcagaggc	ttatcctgaa	780
cataagtcac	tcctcttttt	ggggggcttg	atccgaaaag	gaaaacacaa	ggacgttaat	840
agaattttat	ttctacagtt	catccagcat	aaaaactaca	aaatgtgggg	agatgggaaa	900
gaaaaatacc	aatcggtcgg	tattgtacga	gtgcgattat	catagtcctt	tgcaatgatt	960
tctcggaaca	cctttaattg	tactcattat	gaaaaaaaat	tttctttttt	tctccctcgt	1020
tttagcagca	tcattgtcgt	gctgtcatct	tggtccaagg	atacgccgga	tgcccccagc	1080
agtacgctat	cactatccgt	gccaaactac	cggaaggcag	tacgataaga	gtctcgcagg	1140
tatagccatc	gaattcctcg	atcttcgtac	ccaacaaaag	tggaaaaaaa	gtctcgacaa	1200
gccggtgttt	gctctcttag	tctggtgcca	gtgtatatac	gattacgata	cgtggcgaaa	1260
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taatagcgat	aagtggtctc	atgccgatgg	gtcgttttcg	gtcttgccgc	acatgccaac	1500
gtaacagggtg	aagacgcttc	accgaggagt	tgaccaagaa	caaccgcac	gtcctttcca	1560
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agaggattta	tctctctgtt	cttttcgaga	tagatgagcc	gatcgagact	ttcctggcca	1860
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ccgtgacagt	ggataagtcc	atgatcggtt	accgggttgc	caccgtggca	tactcattct	2040
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caaagacata	gtatcgctct	gaaagaggtg	caggtgctgg	ccacttataa	gaacagacgg	2700
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gggatcaaag	tgtccaagcg	cggggcatcc	attcatacgg	gaatagactt	cctgacaaca	3240
aacccgatgt	gagggaggtg	ttggatagct	ataagcggag	tacctgcatg	ccagatatag	3300
cgatcagttg	aattacgggg	atatgatcgt	ggcttgggta	tcgggctgat	gcagaccttt	3360
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cgctccgctt	atccgggaaa	caacagctat	atccgccctc	gtccaaactat	aatataccgg	3840
cttcgggtcta	tgctgcattc	tttgtcgagg	aagggtctct	gtcgaatggg	gagccaatag	3900
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gggggcatga	ggaagcgagt	tcccctatgc	ctatatggat	ctcgatggag	tagtccatcc	4800
cagagcaagg	ctgccattct	ggaggctgct	gccacgaacg	atattctcaa	gacttgagcc	4860
gagagcggac	ggagctatac	tacagggtcta	catacaaacc	atatcgctgc	gtatcaattt	4920
caaagccacc	aaagagttct	ccgaccgtag	cggctggctt	ttttcgtgga	caatatcatc	4980
gacatcaate	ccaaatacaa	caggccaata	atacgacgga	gcgagactgg	bctataacct	5040
atttcggata	attgcagcat	tcacctatg	aaaaccattg	taagatacag	ccgcctccgg	5100
tcgctctctt	cttttgcctt	ttgggagctg	tgcaacttgc	tgtcgggcgc	agatgctcaa	5160
tactcctttc	gagctgtcgg	atcagatcgt	cctgctccca	ccgaaaggca	atacagggag	5220
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gacaacggca	ataactactc	ctcgctctcg	ctcgaactcg	gtggtcgcat	agtgtccgta	5400
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accaatacga	ccggtgcatt	ggagctttct	tgtgctacct	ctttacgctg	cctcgagaga	5700
acaggctatg	gctttcggct	gcgtatctct	atctagacaa	cacctcacac	agtacaactg	5760
gcgtcccggg	cagcaggaca	aatcttcgtc	agctacgggt	tcggtcagg	ggatgtcagc	5820
aacagcccta	ttggttcggg	atctccagaa	tgaactacgt	caacggatgg	aagcttagct	5880
ccgtctggat	acccgtaggg	gcgatgccat	cggctctcgac	tacagcggca	cttcctcgat	5940
accgaagaga	ggctcgccat	caatctcttt	gctttgctta	caatcgccctg	cgactctatg	6000
gtagctggca	tctgtcggac	ttcgattttc	attttcagcc	gactatgctc	tcgcgcaagg	6060
gatagagcgg	atatacaaga	ctacaagccg	gatgataatt	atcatatcta	cgacctccgt	6120
atcttgccat	tcgcccgtgg	tatatgctca	atgagttttc	tggccaagcc	caagcttcta	6180
ccggattcgc	acggatagag	gttgtgcctt	gagagttagt	gccgtagtga	t	6231

(2) INFORMATION FOR SEQ ID NO:1114

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1059 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1059

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1114

ccagatgaag	cccgagaag	tggctccac	agatacgaaa	gagaagttcc	cgtttgtggc	60
gttcccgaag	agtgggtacc	tgtactgcat	aaggccggt	tcttaccgta	cagtcgatgc	120
gagaggataa	accgggcaag	gtgatgcga	gctgatggac	atcattaaga	aatataagtt	180
ggggcttggc	ggtttgatct	ggaaaaccgt	tgggcttggc	aggaagcccc	atatgagtaa	240
cgatttaca	ggatagcgg	gcgaatagga	aggctcttgc	tcttccgtgc	ggctttcttt	300
tttatccgga	taattaaagt	atcatggggg	gaatcgggag	aatggaatat	tgggtagtgg	360
cagttgggct	acggctctgg	ccaaaatcat	atgacctctc	aaccatccat	caattggttt	420
atgcgcgcg	aagagcaggc	gagggcatta	agcgtacggg	gcgcaatcct	aactatctgc	480
gcgatgccgt	ttcgatcctc	ggaaaatctc	atttttcacc	gattcggatc	tgaacagttt	540
ttcagagcca	gcgatgtggt	ggttcttgtc	actccttcgc	ctttcatcaa	tcctatctga	600
aacgcgttcg	ctcgtccagc	atgcgcgaca	agctgatatc	aatgctatca	aggggatcgt	660
gccggatgag	aatgtcttgg	tatcggatat	ctgcacgatt	tctgcgatgt	ccccaacgaa	720
ctgatagggtg	tagtcccgg	ccttgccatg	cagaggaggt	ggccagagag	cgcagatcat	780
atctacgggtg	ggctgcttcg	atatcaataa	ggcaaaagcc	atggcaaacg	tacacgcaac	840
gattatgtga	agctgtacga	ccagtcagga	ccgtagtagg	cacgaatatg	cctcgggtgc	900
gaagaatggt	tatgccattg	ctgccggaat	agcaacggtc	ttgcagtatg	gcgacaactt	960
tcaagtctgt	cttgatgtcg	atgccattgc	tgaatatgaat	agtttcgtca	atacccggtca	1020
cctcttgga	gagagatcac	ggattcggta	tattggg			1059

(2) INFORMATION FOR SEQ ID NO:1115

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2146 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2146

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1115

aaacttgaaa	ttgttcatga	tgaatatgct	ttttgtctat	agccggtaaa	tgccgtttgc	60
gcctaccttt	tcaaaggtag	caaattcttc	atcatgtgga	aaatacgatg	tcgatggttg	120
gaatgtacac	attccgggtat	caagtacgta	ctctgaccaa	attcttcgaa	taaatacctt	180
gaaaggcgct	tgatattggt	ttctcttagc	cttaaagctt	actccgattt	ctttaatctc	240
cttaatctca	ttctcataag	gattttctcc	ggatcaattc	qtaagtagag	gtgccttatc	300
gtattgtaaa	aatctgaaat	agaacttttt	atgatctgtg	aaatttccac	gagggctttt	360
attcataatt	cgctcagata	taaaacgaga	gtaattcatg	tagccgattt	cgacgaatag	420

tttcttccaa	cattcataga	ttttgccgga	gagtaggatt	tgaccatcaa	ctctgattct	480
tgtcccattt	cttacgaaga	gtttcatcat	ccatcaataa	gcgtaactta	tccgcgaagc	540
ttcatgtgct	tccattggca	caaggaaacc	attgcgaccg	ttttcgatag	ttccctcggg	600
ccggtcggac	aatcgtatga	gattatagggt	agtgcattgc	ttctgcttcg	agaagtacca	660
ttggtagtcc	ttcgaaacgg	gacgtcttag	ataaatagca	gatgattcgt	agtatttgcg	720
aatttcgggt	gtagaggatg	tatttctatt	tgcgactcca	tattgcgaga	tgcaatttct	780
ttactagcat	cgattcattt	tgcgccatctc	cgactatgat	aagcttccaa	tcagcctttc	840
tcgcagcact	cgtgatgcat	cttctatcat	gaattcaaaa	ccttctggta	ggttaagcct	900
gccaatcgcc	aacatttggt	tgtgagtagt	acatctcttt	ggactgtagt	aaatgaaact	960
tgattgggta	tgacatatgc	ttagagcgtc	cacgtaagat	tgccctgaac	gattgctgat	1020
ctctttttgc	agtgtctaaa	cggcatcaag	ccctgaatac	agaaaccccc	ttatgcgttt	1080
gtaatagggc	gggcaatatc	ataagagata	tgttcgcata	cgatcgtaat	attctgcctc	1140
tgttactgat	ctgagacaaa	attgtattga	taaaaaatta	gtccctatca	ataaaaccgg	1200
ttcacgcttc	ttgtataggg	ctttttcctt	cgataagcct	tgaaatatac	tgttttgcgg	1260
gctaattgcat	tgccataaagc	ctaattccga	gatgggtgtac	ttctattcct	ttttctactt	1320
ggaggaaggc	tctccttctt	ttgtacaaac	gctgactaat	gatacgcgat	gacattggca	1380
tgcagggtgt	tagccaagtt	gatcacggcg	cgttctgtac	cgcacgggtt	gttattgtat	1440
ctaacagcag	ataaatcata	gagaatatct	aaacggttct	ttttttaaga	aattcatcaa	1500
ggctatttgt	agtattaatg	cttcaaatat	tattgattgt	aattcctatg	tgaatctatt	1560
tcatttgatg	atattctggg	taagcatgcg	gtttgttgat	cgcaatatgc	atattcactg	1620
caatattcat	gatttttttt	gatattccaa	agattctctt	cagggattgc	catttggttg	1680
tcatcttatt	gtctttttgc	gatgttttcg	cccaacctga	taaaaatcat	tccacctcgt	1740
tgtttttttt	atgtgcgatt	aaagataatg	gcttttcgat	acctccttca	ataggcaata	1800
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tttcgatttt	atatgcagaa	ttaaggctct	tgagctttct	ttttccttgt	gatgcgactt	1920
cttcatgcct	tttttatctc	tttggtttgc	aattctcctt	atgttttcgc	aatacccaaa	1980
tacgagccaa	aaaagttttc	aacaacgaaa	cgagtttgga	atgattccaa	ataagcacct	2040
gaatggaagc	ggattttgag	tcgaagaaat	gagaaaacgg	actttttcag	tttgagtttt	2100
gatctaaaga	gatctggaaa	cgatttatat	ataaatcatt	tgcaat		2146

(2) INFORMATION FOR SEQ ID NO:1116

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 796 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...796

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1116

gccgctgctc	attcgggatt	ccagttcggc	tttctccttt	tctaattttg	tagttcggct	60
tcgagccggt	ccagctcctg	cttctccttg	aaggtcagtt	tcgcggacgc	tcggcagcgt	120
cggttcgggg	cttttcgctt	tctgcctacg	tgtcgagggg	gaagattcga	cggctctgcct	180
ttcggcctct	tcctgcgttt	gtatttcgcg	tactgggtgt	agttgccggg	gaaatccttc	240
acgatccggt	cccctcgaac	gtgaagagat	ggttcactac	cttgtccatg	aagagcggtc	300
gtgcgagacg	acgagtacgc	atcctttgaa	ttcgctcagg	tagtctccag	cacgttcagc	360
gtgaggatat	cgaggtcggt	ggtgggctcg	tcagaatcag	gaaattgggg	ttcttcatca	420
gcacggtgca	gaggtagagc	cgcgctgttc	gccaccgctc	aacttgtgga	tcggcgatata	480
ttgctttctc	gcgggaaaaa	gaactgcgtc	agcaaggccg	atgccgagag	ggtggtaacct	540
ccttttccatt	ccgaatcacc	tcggcgatgt	ctgcacggc	ttcgatgagc	gtttgttttc	600
gtcaaaactgc	atgcccttct	gactgttaata	gccgaaggaa	ccgtctcccc	tacatcgaaa	660
taccccgagt	ccggcttttc	ttcgccagca	gcagccggag	gaaagtggtc	ttgcccacgc	720
cgttggggccc	tacgaacctc	ccttgctcgt	ccggctgaaa	atgtagtcga	agtcgctcag	780
gatatgcgat	cgccga					796

(2) INFORMATION FOR SEQ ID NO:1117

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3743 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
 (B) LOCATION 1...3743

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1117

ctctggggttt	ggtacagtgc	aatgtgaagt	tcctcttcga	agggtgaggag	agataggctc	60
taccaattttg	gaagcattct	gccgcgcaca	caaggagagc	tatcggcaga	tgtgatcatc	120
gtatccgata	cgagcatggt	aagcgcaaaa	ccccgtcgct	aacgaccggt	ctgcgcggac	180
tggcatattg	ggaaatgagg	tgaccggccc	gaacagggat	ttgcactccg	gacacttcgg	240
agggtgcgtg	ccaatccgat	aaacgagcta	tgcaaaactta	ttgccggcat	cgtgacgaga	300
acgggtcgcat	cacgatcccc	catttctacg	atgatgtagt	accctatcgg	atgaagagcg	360
tcaaattgatc	gcacaggtac	ctttctccga	agaaaatact	gtcaggctct	tgacatagac	420
acogtattcg	gggaagccgg	aacagcacac	tcgagcggaa	cagctgtcgc	ccgtcattcg	480
acgttttgcgg	atctgggggtg	gctatacggg	agaaggtgct	aaaacggtat	tgcttctcag	540
gcttacgccca	aagtatcgtc	acgattgggtg	gccaatcagg	atcacgagaa	atatcccaaa	600
tgttcatcga	ctacatccgg	tcgggtggcac	ctaagcaatc	aaagtgaagg	tgactcctct	660
gcatggagggg	gaagcatacc	tctgcctatc	gatttgccgg	cctataaagc	agccgaagag	720
gcgtgtacca	tcgcttcggc	aaacgaccgc	ttgccgttcg	tcgggggtgg	agcattccta	780
tcattgctacg	ttcgagaaa	tattgggact	gaaaaccgtg	ctgatgggat	tcgattggaa	840
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aatcggtagc	cgagttctac	cgcatatata	ataagaagaa	accgtagagg	gtgcatacag	960
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taaaacagga	ctgctggaag	gtgtccgtca	ggatatcagg	atcgagggca	accgtatttg	1080
gagggttgcct	cggcgattgg	ctgtcatgcc	gatgaaatta	tagatgctct	tccatggccg	1140
ttatacccg	gttgcaaaac	tgtcacatc	attcgcatg	actatcttcc	gaggctacgg	1200
cgatgatctg	agactgatgg	attgggttgag	aactggatat	ggccggtgga	agcacagatg	1260
acagaggaag	atgttactgg	ggttctaaat	tggcctgtct	ggagatgac	aagagcggta	1320
cgatgctttc	ctcgacatgt	acgctcatat	ccttgccaca	gcacgagcag	taaagagatg	1380
ggcttgctgtg	ccgtactatc	atccacgctc	ttcgacagag	ggatcaggag	cgggctcgca	1440
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cgcttcgcaa	tgagaaaaat	gtgctgatac	acttgacact	atcgagagca	gaaggagagt	1620
ccgggactgc	atcgctaagt	tcgggtaccac	tcctgtcagg	tatctgacaa	actgggcata	1680
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ggcagctcat	ggctgtaagg	tggtcacaat	ccgggcgtcg	aatatgaaat	tagcctccgg	1800
ctaccgcttc	cacatgacga	gatgcgcaag	cgcggaatag	tcataaggtct	tggtaccgat	1860
ggtgctcctc	ttccaacaat	ttggatatga	tcactcgccat	gaagctggcc	gctttctcgg	1920
caaagcttgg	cgttcggatg	ctacagcagt	gaaagcaacc	acatatacga	aagtgcgaca	1980
gtagatggag	ctcgaatcat	gggtacggaa	ccgggtgtcat	agctccggga	cgcttggcag	2040
atctgtgtct	gatacgtcgg	acatcccggga	aatgactccc	tgtcacaact	tcatatccaa	2100
cttgggttatt	ctgccaatag	cagtgcagtg	gatacgacta	ttgtagatgg	gaagatctga	2160
tgcgcgagacg	taaagtaccc	ggagaggaag	ccatattggc	cggcgagctg	aagctgcata	2220
caaactgatg	gcaaaggccc	acaaaacaca	cgaagaaatt	ataagcatac	cgcatatgaa	2280
actccaagaa	cagcattacc	acgggcagca	tctttcctgt	cctctcgtct	accgggctgat	2340
gcccacacgg	cttaatactg	ggtagcggct	taggcgaact	ggccgaaaaa	atcgaaaaca	2400
aaccgtcatc	ccctacaatg	agatacctca	tttcgcccac	gctacggctg	agggcacaag	2460
ggtaatatca	tcggaggaat	cttaagcggc	actcctgtct	tgccatgcag	gggcgctttc	2520
attattacga	aggatatctg	atggatcagt	gacgttcccc	atcagggtta	tgaagttgct	2580

gggcatagaa	aatcttttcgt	atcgaatgct	gccggcgcca	tcaacacctc	tttcaagggtg	2640
gggactgat	gatcatttgc	gatcacatca	acaacttacc	caatccattg	atcggcctaa	2700
tatggatatg	ttcggcgttc	gattccccga	tatgacacga	gctttgaccg	agagttcatc	2760
gctaaagcca	aaggcatagc	tcaagaactg	aattcccgtg	caaagagggt	gtgtatgtag	2820
gtcttacagg	ccccctctac	gaacgcctgc	cgaatacaaa	ttctggggac	aagtgggtgg	2880
cgatgccatc	gtatgagtag	ggtaccggaa	gtaatcgtag	ctcgacatac	gggtattcgt	2940
ttttcggaat	gtccgtaatc	acgaatgaag	gctaccactt	tgccgatgat	tcgtcaatga	3000
cgagcaggat	gttatccgtg	cagccaatgc	cgcatccgaa	agatgggcgc	gatctttgct	3060
cgactgatcg	ctgccgtttg	aaaaatgtcc	aagtctgaaa	gagacaaaaa	gagagcttca	3120
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caaagggggc	ctgtttttatt	ttctctctta	tgacaaaggt	tccaaccgat	tacaggaatt	3240
cttcttgaaa	aggcaaaaagt	cgctgcaaca	gataagggtt	acgccgataa	agaccggtac	3300
aaaaaaacga	gagcgaaaacg	tctcacgacg	tccgctctcc	aattaacctt	aaaatctaatt	3360
accatgaaaa	acacaccaca	atataatcac	tttatgctaa	acaacatatt	atcggggggc	3420
aaaaactcgc	gtttatgctt	atttaacggt	ttgaaaagat	aatatagaac	ccaaaacctc	3480
tctttgggac	aagataaaaa	ccgacttctg	ctattgaggc	cggcaaaaata	gtttcccctt	3540
aaactccatc	aacaggctga	cttcgattta	gttacagtct	ttttctttct	tggctgtctg	3600
ccttatcttt	gaggattctt	cctgctgcgt	ctttagcttt	cttcgaatgc	tgtccgaaag	3660
tactctccca	gtcgttttcg	ttataggag	aaggccttca	cgctcgaata	tggttatcag	3720
agcacgaagt	ttgctttgaa	atc				3743

(2) INFORMATION FOR SEQ ID NO:1118

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2241 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2241

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1118

ggattcgtat	ctggcatcga	tatcattaat	ggcataagat	ctcgtcagcg	agcaccacaac	60
ttttcttgca	tacgggtatc	tgcgatttgc	ttttccacct	ctgccattca	ctctggattt	120
cgtacagata	gccttgctgt	tcggccgctg	caatttaatt	tgcttgctgc	tgatgtgatt	180
cagaaaaatca	ttcacgcagc	cctgtcggat	ccattgatac	caaatacgga	gaaaaactgt	240
tgggcaacat	ggagggtcga	acaccatcac	cgataatcag	agccaatagc	tcttcggact	300
taccgtaaga	cccaacttgt	cagcttgctg	cccagagcag	tagcctgtac	atactgctgt	360
gcgagctgat	tgttcagaga	agcacgctgt	tctcggtgat	ctttgttcca	ctttgctcgg	420
cgcgtttctc	catcgctttg	aacgctgttg	gtaatcgtag	atthttgattt	tctctccgtt	480
gatatccaaag	ctacttcttg	gctctgacgg	aagaaagtag	atccggatcg	aaggaagtcc	540
cgataataaaa	ggcaaaaaaga	gccacgcccc	ccactacgat	gagcaaacgg	ctttacctct	600
gattttctct	aatgtcgcca	ttttgttatt	atgtttttat	ttattatgca	ctattaagaa	660
tgtgttttatt	aagccacaaa	gatacaaccg	gcttcaaaat	gccaaagcct	tcaactgatt	720
gttttttagt	tcgatggctg	tcgatggaca	ttttcacacg	ttcgatcttg	gtggaagaag	780
atctagaatg	gtaaaagtat	aaggagcaat	ctccacgacc	tcaattggcct	gtggatattt	840
tgatggctat	tcaggataaa	tccggccacg	gtaaggtagt	cgcagactca	ggcaaggaca	900
acccaaaacg	ttcgttcaca	tcactatatt	catacgacca	ctgaccagat	aggtatgagg	960
gccgagctgt	cttgctatga	cttgccagtg	tcgtgttcgt	cctcaatgtc	accgaaaatc	1020
tcttctacca	atcctctaatt	gtgaccattc	cggccgtacc	tccaagttca	tcgatgacat	1080
cgcaatgctt	ttcttgcgct	gcattgagtag	tcgcacagct	ttattggata	catgctttcg	1140
ggtacgaata	cagtagtatt	gatacgtttt	tgccagcttg	cccacgaaac	atttcgctcg	1200
aatggatata	tcctactacg	tcattcatgtt	ctgtctgtag	ataatgatct	tggacaaacc	1260
ggtatcgata	aaagcgtttt	gagtacttca	atatccggtt	gcaactcaca	tgctatcctc	1320
tcattgcgtgg	gatcatgcag	tctcgcacct	gaataccgga	aaaatccagc	gcttctggat	1380

gattttcact	tcggtagtc	agtcgttctg	ttcgttttct	cggacatatt	ttctgccaaa	1440
taatgatcga	gatctacgcg	ccccaacct	ctgtttagg	cacataattc	ttgtccacca	1500
gacgaataaa	agagcgagaa	aaccggtgaa	gagtttagac	agaggataaa	gcagataata	1560
gatcgctaga	tagggagggc	gaataacctc	atcatcatat	tggcattggg	cttgaaatgg	1620
ctttgggtag	aaattccccg	gtaaacagta	tgatgatagt	ggataaacag	attggagaac	1680
gacgatcata	gcacgtttat	caatccattg	cgccaagggtg	cggccagcaa	tcccgccatc	1740
agcagaccat	agactaccaa	aacgtattat	taccacaaag	gagagtagtc	accagttggg	1800
ccggatgtcg	ataagcaagt	ttaacgctct	gcctgtgaga	tcgcctctat	tcctgtccaa	1860
ctaagacgca	gtttgtccga	agaaaggaaa	gcaatctcag	caccggaaaa	aagccggaga	1920
gtaaaagtgt	aatcagtatg	tacaggtaat	tcatttttgc	ctttgggtgg	tggagaaacc	1980
gatggtctcg	gcataaaaag	agaagcggcg	gctttgctgt	ccgatccctt	tgacgaatcg	2040
gtatggtgtc	ggcggattgt	cctcctcttc	actcacatag	taagtcgccc	gaatgattga	2100
atatggttac	tcacccatat	cttgagttgc	agtgaanaag	cgccccctcg	agtattttgc	2160
cnggctttga	atgtagactg	tatcatcgga	ataaacaatg	gcgttttctt	atccatataa	2220
atcgggggga	atggaagtct	c				2241

(2) INFORMATION FOR SEQ ID NO:1119

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2974 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2974

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1119

tgccggaagt	cgaacatgcg	gatggccagc	gtacgcggat	cgttctcggt	tgtccctggt	60
tggccgcccc	ataggtgaag	agcaggccga	tcagcaggcg	gtgagcgaga	aagctcctgc	120
caaaagtgtg	cctttcctga	ttcgcgacct	atcgcccttt	tttccaaaag	gaaagccaag	180
gccggttttg	ccacgtggtc	agggtgattc	ctcccagcag	aaaggcaaac	cagcgaatgg	240
tgactcgccg	aaacttccac	gcatacttga	ccgaaccgac	agtacagtga	tggaaagggga	300
agcaggaaga	acgagagtgg	atagctctcg	atagtgaacg	gcaggtaagg	gctgtgaagc	360
tgccggccga	caagagggtg	acgagcaggc	tctcgctcgt	ccctgacccg	ccacgcggcg	420
gagataggcg	taggtggccg	tacgcctgct	gccgtgcaca	acgtcatcaa	ggtcagacaa	480
atgccgaggg	taagctctct	cctccgattg	tgacgaattc	gaaccgattg	aggacataga	540
gaggttcagg	aaagggatgg	ttatgtcgaa	gcacactcct	gccgtttcaa	gcgatagtag	600
ttgtcatagc	ccagatatgc	accgatgagt	ccgtcgttgg	tgtcaacagt	ccggtggatg	660
cgatgtgcat	tgctcagtgc	ccgtatgcag	gctgagtatg	cagcatagaa	cggcttcctc	720
tcggtaccga	ctgagagtct	tccgatagct	ccctttcgta	tcatttcagg	cgtttcagtt	780
cttatattgc	aaatgtagat	attatataat	gatgagaata	tactatggtc	tcaatgagag	840
gatactatgg	tctcctatga	gaggatacta	tggcttcaca	cggaggatac	tatggtctca	900
tatgagagaa	tactatggtc	tcataatgga	gatactatgg	tctcctatga	gaggatacta	960
tggctctcta	tgagaggata	tatggtctca	catgagagga	tactatggtc	tcacatgaga	1020
ggatactatg	tctcatatga	gaggatacta	tactcttatg	ggagatcctg	tttataattc	1080
tatatattga	gcctgatgag	ccggtcagga	ggctcttcgg	aagttttatg	gaagtaagac	1140
agaacaaatg	atacagtaca	cagtgaagga	acgccgatga	aagtaggcaa	gcatacgagg	1200
aaaacgatgt	attatgccga	ggctcgaaat	cgaaagtgat	tgactttgaa	gaggtgatca	1260
gggacgtttg	cgagtgaagt	cgctcacgac	cggcgatgtg	cgcaatgccg	tggatcgact	1320
ggctattacc	tcaagcgcca	gttgacagag	ggcaataccg	tcaggctcgg	acgatcggga	1380
cttttcgggt	ttatgcctcc	gggcggttta	tggagcatcc	caagaggtca	atgccacgac	1440
gatcaagggc	gcgaagattc	agttcataca	aacaggcatc	tgccgcgaag	ctcttctttg	1500
atcaaggtgg	cggtggacat	ccctatctga	ccaagaagaa	agatctcact	gccaccggca	1560
cggagtgcgc	gagggcgatg	gacccctcgg	tttgtagtcc	tgggggcccga	ttcgggtcta	1620
tttgctgctt	tttgctgtgc	cgattatctt	tgcaagcata	atgaagagga	atttatcggt	1680

cgacagcca	agtcgctgag	tctggccctc	gccatttttc	aggatgtata	ttcggcagtg	1740
tgttgccctgc	atggctgcag	gagatgtggc	aggcgaactg	gagcgttgct	tcttggccat	1800
gcccgaatcc	gtctgccgat	cgtaaccatg	gaggagcgga	acgattttgtg	ccggagggca	1860
ggcatctctc	cggctttacc	catacggcat	ctctggagtc	ttctctggga	gtaccgttac	1920
gtttctctc	aatcggaact	ttatcaggat	tcagaccagt	ccgtcggaga	gggtgtttatg	1980
cgcctcctgc	ccttttcgga	tagcagctcg	tcattctgct	ggtcaccacc	gtcttgacc	2040
ccgtggcgga	tagccggacg	atttctacac	caccgaatgg	aagccgctca	agaccgaccg	2100
cttttgagc	aacctcggat	agaggatttt	ttctctcccc	atacggacag	gcagtctatg	2160
cctatcaggc	catatatgca	agtctgacgc	cgtcttatat	gcagggtcgc	tctcggaga	2220
gtcggataca	ctctccatcc	gccaaaccgt	gacaagacct	tggcagagga	ggagaaaaccg	2280
cttgccggca	tttttctttc	accgaaccgt	tggctctatcg	ttggcagtc	ggacgattcg	2340
ttcggcaggt	tcataaagca	atacatatta	ttaaggtaat	agcaaggaaa	cgatggaagt	2400
acgaagaaga	ggctcgtcct	gatgggggtt	gccgtactcg	ttcttattgt	ttcatagggg	2460
ttttcttcaa	ttggcgtgtg	gttcgcgaac	gtgctgctcg	gaacaggatc	gcgagaactt	2520
tgccaagctc	gaaaaggagg	ccatgcagat	gaactggatc	gtatatccga	ggactatacg	2580
cagcagtaca	acaagcttcc	ggctctacgg	gagaaatgaa	tatccaattg	gccaacgatt	2640
cccttcggca	caactctccg	ccgagcgtgc	ccgcgtcaat	cgattgcagg	acgaatgaaa	2700
acagtcaaga	cgaccaatgc	acgcaggata	aacgagctga	gagggaggtc	aagacccttc	2760
gtgccatact	gaagtctgat	gtcgtgcaga	tcgctccctc	aatgcagcca	atgcccgctc	2820
ccgaacggag	aatcaggagg	tgagcgcaac	ctctccgagg	ccgtgggcga	agccagtcgt	2880
ctgaaagtgg	aaaagccgaa	ctgaccggaa	aggtggagct	ggcatcgaaa	ctggaggcta	2940
cggcatatcg	gtggctttgc	tcgacaagaa	aggc			2974

(2) INFORMATION FOR SEQ ID NO:1120

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 564 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...564

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1120

gcctccgaag	ttcaagggtgc	ctaccggcgg	ttctaccctg	atcaagtagc	gctatgggat	60
cattccgaag	ctatgtatgt	gaataagttc	tatatcatat	atatgactat	tccaaagacg	120
cttgggagca	ggggatattt	ttggccatga	gttcaactca	cctcttcact	acgtggaaga	180
atacactttc	gatttgctca	atggaagggg	aaagacatca	aggtggcttt	cgtgaaaaac	240
ggtactatca	aatggctatg	gatgacatca	gaatcctgaa	ctaccaaagc	ctgcagaggt	300
agaacaagaa	ggtattcggg	tttatcccaa	tccgactacg	gatggctgat	gctggacaat	360
gtgggtgatg	taagcgccat	tcgtattata	gaatgtatgg	caggccgctt	gtgggtggctg	420
gcaatgccgg	tagctctaag	tgagtatcga	tgtctccgat	ttgggacggg	gcaattatgt	480
cgtcgatatg	agtgcaaagg	ccatagggaa	atcagccggc	tgataacaaa	agagtaaatg	540
ccattctctc	ccgaggggga	gggc				564

(2) INFORMATION FOR SEQ ID NO:1121

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 882 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...882

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1121

cggtataat	ctcgaagcaa	atcctctctg	caagctgcaa	gcatgaaatt	cgacaaacga	60
aattccacac	tgcaagcctg	caatatgaaa	tttcggcgaa	aaattactcg	ctgcaagctt	120
gcggccatta	atctcggaag	caaaattgtc	actgcaagca	tgtaacagta	ttttctgcaa	180
ccgaaatcac	cgtctgaaac	ttgaatcaaa	gagatactaa	tcataagaca	attattttct	240
caataaataa	tcattacttc	catatttagt	catagctatc	atgcgtactt	atttaaattc	300
ctcagccgca	acaaactcta	caccttcggt	accatcgtag	gcttgccctc	tcgctcatat	360
tcgtcttget	gcttagcttc	tatgtacggc	gcaacagcaa	gccgatcgta	ttcataccga	420
ttacaaacgt	atctatcagt	aaatgtcgag	agtaagaata	actggagcgg	atztatctgt	480
tgctatcctg	cggaaacgct	attcgcgagc	aggtaccgga	tgtggaagag	atatgccgct	540
cagcgaatac	aacgacaagg	aatacatctt	tatcgggtgc	gacaagcaaa	cgggttgatt	600
gcctcccatc	tttcggtcga	atccaacttc	tttacttctt	cgacggctat	aaactccttg	660
aggggtgatec	caaaactgtc	ctttccagca	gaacagtggc	gttatttctc	ccgcgttggc	720
agcccgatc	ttcggaaacgt	gtctcccatc	gggcaggaga	tttcgttttt	cgatttttcc	780
aaaacaagca	gacctttcgg	atcacgggca	tcatggagcc	gatgccggat	aacgccatat	840
cagaccggcc	gaactccttt	tctatcagga	gcccaaagaa	aa		882

(2) INFORMATION FOR SEQ ID NO:1122

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2904 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2904

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1122

cgcaagtgtt	tttggctgcc	aaagagaaga	tagaacgaac	ttcttcagac	aggatacgaa	60
tatcgcaata	catgataacg	atccatatac	aaatcattac	gatctatata	cagatcgttt	120
tcaatttata	tacaaaacga	ttttaattat	atatagatcg	taaatgattt	gtatatggat	180
cgcggtctga	aaaaagcttt	tcaagagttg	aaatacaaa	aggcaccgcg	tcaattcatg	240
gccgaccgag	cgggtgcctt	atgcatttga	tctattatgg	aagtattatc	ccaacctatt	300
cgttgccgag	atccatgtgt	ttggggaagc	aatatacggt	gcagtatgag	ttcggcccaa	360
tcggccggac	aaatcaagag	aaagagtaaa	gtcggataca	tgtctaattg	catttagccg	420
tttaatacaa	aacaccgtcg	tcgatagaat	ctcgtcgaca	tactgcgatt	tggctttaac	480
aggagatctc	attgctctgc	aaatgtaacg	aaaagaccga	ccggacagaa	actcttgaaa	540
aagcgacagg	cttcggaagc	cgctttatcg	gaaagtcggt	atcttcgtcg	tcaaagagat	600
acctgtgtat	ctcgtcaata	cggatattat	catcgtttgc	ccatatacga	aaaatctttt	660
ggcagatggc	ttttatgtat	ggtcggcttg	ccgcttccat	ccttgtagga	gccttgcttc	720
agagttgccg	aggcttgtgt	ccgaagaggg	gagagccgac	agcatcccat	gcgactcctc	780
tgtctatcgg	ggctgcgctc	tgcggacacg	ctacgcgtgg	ctacactctc	atctcgacca	840

cctacttcgt	gtacaaagac	gaagaaatgg	gctatgagta	cggctggcca	agctgctcgc	900
cgactctctg	ggcttgactc	tggtcgtaga	atgggtgcca	acgacgaggc	actttatgct	960
gcggtcgata	ccggtctggt	gatatggcaa	ttacacctca	ggccgcaacc	ttcaagggtgta	1020
agcagaagtt	ctcttcggtt	gtcccgaaga	aatatcgggg	caagtattgg	tgcaacgcgc	1080
gacggcaatc	cacgtataac	gaacgtaaca	gatcttatcg	gcaagccgtt	acagtcattg	1140
cacatactcg	ctatgccgat	cggctccggc	acctgacgaa	gaagtggggg	gaggtatcga	1200
ttcgctgac	ctcagcggag	atacctcacg	accgaagacc	tgatcacgca	ggtagccaaa	1260
ggagaaatag	actaaccttt	gccgatgaac	agttggcacg	antggnchgg	accctactac	1320
cgcataataga	catcagtttg	aaagtaggct	tcggacaaaag	gctgcaatgg	atgtccgcaa	1380
ggacaatcat	tgtctggcgc	ggtgggtgaa	ccgatggggg	gatccatccc	cgacaaggaa	1440
tcgtaccgag	ccatacagaa	gcgatacttc	agatgagcaa	gagcgacgat	gaggtcgaa	1500
aggagcagtc	cgctccccgc	ctcgcatcaa	gctgaggaaa	gggagtatat	cgcagtacga	1560
taccatttca	agcactatgc	agaggagttt	cggctcggct	ggtcttgcca	tctgctccat	1620
ccatcgctta	ccacgaatcg	cgcttcaatg	ccggtatcgt	aggctgtccg	gtgccagagg	1680
tttgatgggt	atcatgccga	ggacaggccg	acgctcggag	ccgacaagca	ggaaacttctg	1740
gatccggaag	tttcgggtacg	cgtcccatcc	gatgcctggt	ggcgttcaag	aacgaatttc	1800
ccgatgtaac	ggaccggaag	aaaagctcaa	gtttacgctc	gctgcctaca	atgccggctc	1860
ggtcacgtgg	cggacgcaag	gcgtttggct	gcgaagtacg	ggggcaaccc	cacgtatggg	1920
acaataacgt	ggaggcatac	atccgcctca	agaaagaccc	aactactata	acgatcctgt	1980
ctgtcgctcc	ggctatctgc	gaggtycggg	acgatcaact	atgtacgcag	cgtaaatggct	2040
cgttatcagg	catacaaaaag	aaggattgat	accactactg	catctaaaga	cagcatgttt	2100
caggcacgca	cttgaccaaa	agtttcggcg	atttggttct	cttcgaagac	ctctcttcag	2160
tatcgaacgg	ggcgaaaagg	ttggacttat	cgcacgcaac	ggcaaggga	aacgaccctg	2220
atgaatatcc	ttacgggaat	cgactcaccc	gattcggaga	agtgatctac	caaaacggta	2280
tcgcgcgtgc	atacctgcca	cagttcccca	agtacttccg	ggcagtaccg	tactggagac	2340
ctgcttcgga	caaacgatga	gatgacctcc	ctgatagcgc	aatgggagga	ggcttcggct	2400
cgggcgacgg	caaacgcatg	gaggagttgc	tccccgaaat	ggatgccctt	gcgcgtggga	2460
gtacgaacag	cgcgcgcggg	agattctcac	ccgtctgcac	tggacgatct	gcaactgcacc	2520
acggacaatc	tctccgggtg	ggagcttagc	gtatcgctct	ggcaggtagc	ctcatcgga	2580
atccggaact	gctgttttgg	acgaaccgac	caatcacctc	gatctggacg	tgatcgaatg	2640
gctggaggct	acctctcgca	tcagcagatc	ggactgcttc	tggtcaccca	cgaccctact	2700
ttctggatcg	cgtatgcaac	cgcatactgg	agctggacaa	caaaagctgt	atgcctacaa	2760
aggcaactac	gaatactacc	tgaacaaacg	ggagagcggc	tggaaagccac	cgaacgcgaa	2820
acaagccgcg	cagccaacct	ccgcgcgcgc	aagcggaatg	gatgcatcgc	agaccgcagg	2880
cacgcggcac	gaagcgaaga	gccg				2904

(2) INFORMATION FOR SEQ ID NO:1123

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1215 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1215

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1123

acctgtatct	gtatatacctg	atttttagttg	tttttagtca	ttcaatctca	cgtagccaat	60
tttatcggtat	aacataattc	ccttttttct	tcctgttttt	gtatcattct	tcaagcctct	120
aaaatataat	catagcagat	aatgaggtct	cctgcatatg	tattgaaaaa	tcataacaaa	180
ttgcaatgat	gttaaaattt	tccattgaac	gcaacggctt	atactttagt	ctcatttttag	240
atataagaga	cgtagattat	aaaaaccatt	gcatacctacg	caaaattctt	tacgaaagcg	300
aaaaaagatg	tgtaataaaa	gtaatggaag	ctgccggggg	gcaactaactt	tacattgtta	360
tgcagaacgt	aggattaaga	ctcaaacagg	agggaacaga	aaaggctatt	ccttacagta	420
tgttgctgct	tcactgaatg	tagtaccact	acagtctatc	ggatcgaagc	cggaaataaa	480

tatttaagta	ggagcttttc	gaccggtact	gtgaactttt	ggaactgaat	cccagagact	540
gttttcgaat	cctgcaatgg	aagaacgaga	ccggattgct	cttgagatgg	ccgaagggtt	600
atagagataa	tggagttggg	ggtaacaatt	atcctgccaa	gattatgaat	atcaatatcc	660
gacccggggc	tccggacagt	aaaatgaaca	atagatatga	tggaaagcga	tgaaataaaa	720
agcattcaag	aaaactcaaa	gatattcagg	gggtgttatc	ggagatacat	ggttttatga	780
gagactgaaa	aaagattaca	gcccgggtga	tgaagcatc	agtctggatt	cgatatgctc	840
gccatgcttt	tgaatgtctc	tcctactact	gtttaccgat	gggagcaagg	aatgagttgc	900
cctacacgat	tctgagcagc	ggagcatgtg	ctatcgattc	gacgaagtgt	acgtggccgt	960
caaagtgtgc	cggttaagag	ccgcggattc	aatcggatag	aggcattaag	gactttatcc	1020
gtctatcgga	cggtatcata	gaggggtggt	gttttgaagc	aaaggaaaaa	gacccnngtt	1080
catatcaagg	aacaaatact	gggaaagaac	ggatgaaggg	ttgnctttat	tcaactacta	1140
tatgcctttt	cctttcaagc	ccgaagaaga	aatttcaaac	ccgctctacg	aagacaaacg	1200
agctttcctg	gtata					1215

(2) INFORMATION FOR SEQ ID NO:1124

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1653 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1653

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1124

tcacctccga	tacccaacga	agtcggcgag	aggagtgtta	gtttgtagag	ccgttgga	60
cacctcccca	acccagttg	aaatggaaag	taccatccaa	gcataacat	cgcaaacgaa	120
agcatgtcct	atgctctggt	tattcccgca	taatagaccg	gccttccgga	ggcaagttcc	180
ccgcggatca	tatcgtccac	tcctgtgagg	tatataaggc	gcgtacatgt	agctgcagtg	240
aacgctgtag	cgaaagtgtg	ttcgcaaggc	tcctactaca	taaacgctgt	acgtccactt	300
ccattttcat	aaaaactcat	cgaaacagat	gcactcacat	caccatcagt	gtggcgtagg	360
catccacttg	agattgagtc	agattatcaa	ggcgggattt	ccgggcatat	tgatccagtc	420
gtacatttca	ccaaatgtgc	cgaccagttg	ccaactaatg	aacctgcatg	ataatcgaaa	480
gagccttcac	ttgaagcggc	cagctatggt	agcgcatgat	ttgtgctgca	gcagtagcac	540
acagccggta	taggcatgat	tgccattagg	aagcagtggt	tccttatttt	ccatgggtaa	600
ccttgattcc	atcgcagtg	atcgttggca	aaatgacgtt	atccatcaga	gcattgactt	660
cagccgggtac	gcctcggta	cgtaattctc	ttcattgagc	tgagcttttc	cggaaggtat	720
caggcctatt	tcctgtcgta	aatttgtagc	cacatgcgaa	gattgtccgg	catactgtcc	780
atgtgaaacg	gccaatgggt	gaataggcta	aaattgtcgg	tattctgtca	tctctgttac	840
aagagcatag	ccctcattat	ttccacgatt	agctacataa	aatatgcagg	agagccttcc	900
tcctgtgatg	tgatacccct	ctcagcatct	cttgccgata	aacgtaatcg	atggaaatct	960
tgtcagatac	tgctgtttgt	ccattcgcaa	ggataacctgt	cgcaaagcca	gccgagccag	1020
actcaaagcc	gtcttttcgt	aaccggagca	gaatgtccct	gcattggcaat	gccaaagaca	1080
ttactatggc	taaaagaaaa	ctttttttca	ttgaagggtga	tattccgatt	atgagagttt	1140
ttgctgtggt	cgccctatgg	ggcattgtag	aatttgtgca	ttctacaaaa	gtgtttctga	1200
tgatgtagta	ttaggatcag	gcaattgaat	gaaaaaagcc	ggaatttata	ttctttccaa	1260
tcctgccatt	tttagagctg	taacggctgc	ttccgtgcct	ttgttgccat	gcttgccccc	1320
ggccgctcct	cggcctgaag	cattgtttcc	gtggtaagga	ctccgaaaat	gatggtacaa	1380
agccgtcaat	gttcaactgg	gtgattccct	gtgttaccct	tggcagatat	agtcgaagtg	1440
gggggtgtcg	cctctgacta	cacagccgat	gcgatcactg	catctacttc	atgctgttcg	1500
gcaaggtatg	acattgcctg	gtaagttcga	aagtgcgggg	aacatgctgt	acgatgatat	1560
tgtcagccac	acaccatgct	ccaaaagggt	atcgatagcc	cctttcatca	gtggctcgtg	1620
atattgtgat	tcctttcagc	aacggcaatt	cct			1653

(2) INFORMATION FOR SEQ ID NO:1125

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1632 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1632

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1125

cattgcgga	cctatcagca	gcaagccgat	acctgtataa	acgccatagg	ccaatcgtct	60
ttgaccagct	ccaactccga	catcgctactc	catcgccctg	ttcgcgattg	tagctaagct	120
gatagatata	ccacctctg	taacggaagg	tttattgacc	agtatagtcg	cgctgtcgat	180
ctcgccattc	tcagcgatag	gtatacctgc	gagctgtatt	gtttcggatc	gggttctgcc	240
atcacagcga	cagactgtcc	gttaatcgta	agcttcgata	gggaaatata	tggcaccgga	300
tgacacccaa	ccggatacca	cttcttgggg	aaaatctaaa	ttccagctct	tactctggct	360
gaatgtacgg	ctcccaatga	cctgaattcg	cgaagacaac	ggagtctttg	gtcacgacag	420
cagccgaata	aggcagatgc	gcaatacctc	gatctgccag	cggctctatcg	ttcccttgga	480
aggagtccga	ctatggacag	atgcgcggga	cgagaatagg	gaagagcctt	gccactattt	540
tgcgtatgat	catcaatttg	ggagggtact	ctgctatttc	gaacttttta	gttctatggc	600
tacggggagt	tccaccattt	ttttgtccgt	tggcttagcc	cctccactca	ggatagtcgg	660
agtcggaata	tacttgcaat	ctgtatgccg	gatgtcggca	gaagacataa	gcccgaaaaa	720
aagtgcgacg	aacaaccac	gtgattcatc	acgaaagcac	cgtcacgaag	gttcagtttc	780
agaccataag	cctgtctgta	gtaacgcagc	ccagtacaaa	gagcaaatac	agaacagcag	840
caggaagtac	catgccgata	gcattggagt	aagtcccaaa	cgtgaatagg	atgctgcaat	900
cctctcccca	tttctgcggg	gatttgtttg	gcagcccat	gatgactgca	agcagcagta	960
gcccaccgat	agaagtcaga	tggctatgtg	gccagataga	aaggagaaac	gggccgaatt	1020
gcgcggtatg	ctctacgatg	gaatatgccc	caaaacaaga	tgccggcaag	aagcaaaactc	1080
ctccgaccag	attgaaagga	tacagcgaaa	gctgtggcca	gtatcggcct	gcgatcacct	1140
ggagcaacaa	acctacaaaa	gcaagtcctg	atatgagaat	atgccttccc	tatagccgaa	1200
gcgtccctgc	cacatagtgt	tgtatccgaa	aaaatagtaa	acagtcttag	tgaaaagaac	1260
agatcagtct	tatctattag	accttatttg	gctgctatca	aaagaccttt	tccttttgc	1320
ttctcaccga	cttgggcacc	actgtctcca	agaacttttc	tttgttcttg	tgaaccatc	1380
catatccaag	cctatatact	tctgggcttt	ttctttgggtg	ggacatcagg	cagtgggtacc	1440
tcatecgtat	agccatgacg	tgcaagtacc	gagctatctc	tatacgtgct	tgcacgcac	1500
gctccagccc	gttgcgtgaga	tacgtgtaat	ctcttgccgt	gcatggaatg	aagctccatg	1560
agaagccatc	catagtccca	acgccactgt	gattggcgga	tatacttaag	tatgggggtca	1620
ttttcctttt	ct					1632

(2) INFORMATION FOR SEQ ID NO:1126

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1095 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1095

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1126

```

ggcttcgctg gatgcggagt ttgctcgcgt gggttttttca cttactgatc gaagcgtggt      60
tccccgatca ttaaaaccga cgacggctat catatcgtea gctcatagag aaacgaggcg      120
atgtgatcaa tttccgacag atcgtaccaa acccaaagta tctgatgctg ccttgacgga      180
aactacaaac aagctgatag cttgtactcc ctgataaaaag gaaataagct gacctttgaa      240
aaagcgttgc ccaatactct gaagataacg atacgcgcaa caatcaggga cttaggtcaa      300
taagctccag cagagcgatt tttatagttc ctcccgcctc aagacgaaga gttgccacaa      360
gacatcagcc gagttgtcta caatatgaag ccggtgaagt ttccaagcct tttattctca      420
aaacggacaa aggtaatgag gggttgtcat cgtgaagatc aaaaatctga tcgaaggaca      480
ccgagccaac tgaactccga tttccaaacg atcaaggcct tagccctaaa caaaaagaag      540
aaggagtgtg cgatgcatgg ataaggaaga agcaaaaaga aacttatacc acatcgaacc      600
tgcctaccgc aactgtcagt tccgctatcc gggctggttg aagacagaca ataattcggg      660
gtggaaagaa aatctctttg gagagaagtt tctttctgtc tcgagtacaa atagatgaga      720
aaggggagaaa aacgaaatct cggctcggta gccgacaact gggggcgata attctgatcg      780
tcacctctct ttttctgccc ttgctctctt ccaaggctcc cctcccaaag ggataagggg      840
aaaacgcatg tcactctcga acatgcggat gaactccgtt acacagactc tacaaccccg      900
atgtacagcg tctgcttggc aatgtcgtga taagcatgaa ggagctgtga tgcgctgcga      960
cagcgctcat cttaatcagg agagaacact ttcgaagcat tcggccaagt ttccatgcag      1020
caggcgacac gtatcatgtc gcccgatatc catatgatgg aacatcaaat acgctcgttt      1080
cgccatgagt gcgct

```

(2) INFORMATION FOR SEQ ID NO:1127

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1390 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1390

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1127

```

ccacagacca aatgggggatt gtagccgaac tggatttgcc ataacgctca tattgacccat      60
cactttctca tatgggactc ccatacgtcg ggcaacggat cgatgattcg gaggttggcc      120
tgatgaggta ctacccaagt aatatcacgt gcgaaagatt gttgcgctcc atgatctcca      180
cacagctgtt gcacattcta cgacagcatg tttgaagact acctgccctt cctgatacac      240
ataatccaac gattatccac cgtttcgtgc gtagcaggac atgccgatcc accgccttca      300
tgatcaaatg atctttgccc atgccattgg agtgcagcac agctccataa cgcctacttc      360
ttcttcggtg gcctcgagca aaacacaacc gggccatccc cgaatagcgg acaagtggct      420
cgatcggtat aatccgtaaa actgtcatct tctccgtagc gatcacaagg atcttggaaat      480
aacgccccga cggataaaat tggctccac ttcaagggca taaataaacg tgggacagg      540
gcctgcatat cgaaagaaaa gatgtcgcca caaccgattt catgagcacg atgctggccg      600
tggaagggaa atgatagtcg ctcgagttgg ttgcaagatc aagccgtcga tactcttggg      660
atcgatacca tgacgttcga agaggtttgt gccgcacgga tggccaaata ggaagctcct      720
ttattcttgt ctcgaggatc cgacgtctct tgatccccac acgggtcatg atccattcgt      780
cattgtatca accatttttt ccagatcgtc atttgtaata acatcttcag ggaataggcc      840
ccaacggctg ttatagccgc gtttatttta ttcataatcg aattgttgca taatggacgg      900
gcaccggccc tttttaaaga ccatatcccg cggaaaagat tatttgtggc cgctaaaata      960

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aaaaaaaaagt	cccaaagaac	ggtctaaggg	actcttttgc	tcgttcttgc	cgctaagcg	1020
acgaccggct	cgaccgaggg	caagcaattt	ttacactgcc	acttcttttt	cgattgccac	1080
ttaccgcggt	agtagccaca	atcaccacat	actgtgtgat	agatgtgcat	gctccacaat	1140
taggacactt	ggccaaagtc	ggcataacgg	ctttgtatga	gttctccgct	tggcggttct	1200
cgttttggac	tgtcttcttt	taggagtgcc	atttttattt	atttaaattg	ttctttttgt	1260
tccaatagtt	ttccagagaa	tcccacctcg	aatcgtaggc	ggtcataccg	gattcttctg	1320
ttgttcacgc	gcattctatc	ccagcagatc	ggacattcga	ttcatcatct	cgggtcgcac	1380
tctcatccga						1390

(2) INFORMATION FOR SEQ ID NO:1128

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 723 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...723

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1128

gacgatgctc	cttgctgata	atcgtagcca	taaggttacc	gccgaaagcg	gacgtgtcat	60
cagcagattg	cgttcgtcac	cgatctcaag	cgatgtacgt	ctgctgtaag	acctgtacgc	120
aagcgagaag	agagacgggg	accgagggcg	gaccaatagt	cgtagcaccg	aagagtacga	180
tctcaggctt	cttgtctgaa	gaatttggtg	aatggcctga	gcgtaaggct	cagtaaggta	240
gttctgagct	tctcatcgtc	tacgacaagc	accgtatcgg	caccggcagc	gatagttcct	300
taggcaagtc	agcaacctta	tagccacaaa	gaattgccgt	tacttttctc	cgatgggtgc	360
tgccaattca	cgagcctttc	cgatgagttc	gaggctacgt	tctgaatcac	tccttcgcgt	420
tgttctgcga	agacgaaaac	actttatata	attccttatc	catagttgct	tggttggtcag	480
atgatgaatt	ctctttcagt	ttattgaaga	taatgtcagc	agcttcttcg	ggagtgatac	540
ttcatgcagt	gctcccatgg	ccttggtctc	cttagtgaac	gacttcttac	gctcgtggga	600
gaaccggcca	aaccgattct	ttccggatca	acatcaagtc	gcttgctccc	cagcactcaa	660
taggtctgtc	gaaggtttcc	ataatgcacg	aacgcgcagt	tagcgaggct	tattagccgt	720
agc						723

(2) INFORMATION FOR SEQ ID NO:1129

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3053 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3053

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1129

agccactcac	taatgatacg	ggttttatca	tactcgaaac	catatctggt	tttacaccgt	60
ctttcaaaaa	ttgtattttca	aaagaagttg	gtttttggca	gattcccgat	ccaacataaa	120
cgggtcgaaa	cgaagagtat	cctgaggttc	aattttaccg	aatccaatac	gatgctacgc	180
attttggcca	aagcaaaaaga	gcattgcttt	ttccacttga	attggctccg	tataaaacgg	240
ctgccgaagg	agtttgtaag	ctcctttcct	aatgacagat	ttggaaagtt	ctttatggca	300
gaagcttcca	tgctcaaagt	tttttcatct	ctgaatgagc	ggaattctta	aaagtgaagt	360
tgaccaacat	aactcacaca	ataattatct	gaggcaaagt	tatctaacaa	gcccggaaaa	420
gcaagaaaaa	cgagaaaaaa	ttcacaaaata	gcggccttgc	gttctttgca	gggagcaaaa	480
gatacaccat	agaaagattg	tagacaaaag	aagaacaaca	aatctcgagc	cggaaatcgc	540
ggaaagtgcg	gccgcaatct	tgaaaaagtc	gcgccaaaat	tttttcgttt	ggttcggggt	600
ttgaaaaaat	ctcgcgcgag	agcggaaatt	ttttcgccca	cgtttttagg	aatagcaaac	660
aataattttc	acggacgaga	atgcaggcga	ggagagatgg	ctgcaatgct	tttgatttgt	720
tcgtcaagga	gtaaacccgcg	caagaggttt	tgttccttct	tctgtggcg	cgtcgggagcg	780
gagggaccgc	gagggggctt	ttggcagagg	gagaagtatc	ggtcgaaaac	agttttttgt	840
ggccaaagca	cctatatctt	ttaggggtat	gagaaagaac	cgttcggcgc	attgcagctt	900
gccgtcgtgg	cagctgtcat	tataggcttg	tgatgctctc	ggcatgtgcc	aatatgggta	960
cgccggaggg	ggggccttat	atgtgacgcc	cccgcgtttg	ctcaaggcta	cgccggcaat	1020
gggtagcaca	agcaaacagg	caataagatc	tccctcctat	tcgatgaagc	tatccagaat	1080
tgaaacaaaa	cgagacgggtg	atcgtctcgc	caccacagat	caaacagcga	aaatatccgt	1140
ctatggccgc	atgctgacca	tcgagctgcg	cgacaacttc	gcgacagtac	cacctatacg	1200
atcgacttta	ccaacggttt	ggccgcaaca	acgaaggga	tatcctggaa	aacttctgct	1260
atgctttttc	caccgcgatg	tacttgattc	gatgcagatc	ggcggccggg	tgatcgatgc	1320
cctacgttgg	agccggtggc	aggtgtcttg	gtcggcattc	acgattcgga	agggatacgg	1380
ctttcacgaa	gactcctttc	ctgctacta	cactgacggg	aaggacggct	ccttcacggt	1440
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tcggcaatgg	cggaaaaaagg	gaaaacatcc	actctccagg	aaacacggcc	gaatcggcgg	1680
cagcgaatgc	atcgcttcgg	caacagcctg	tccggatcgc	cccgcacaacg	ttctgctccg	1740
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caagtgtctc	tacattcaac	acaagacctg	ataccattcc	ggcactgcac	ctgctgggag	1860
agaaaaggga	aaaaactggg	attcggctat	cagaaaaggt	gagaaagaga	tgtctactgg	1920
ctgacggata	aagagatcta	tagccgagac	actttggcct	ttcgggtcact	taccccaaaa	1980
gcgactcgct	caacattcca	cggccacagc	ggacaccttg	cggatggcca	agccgaaagt	2040
atccgtacag	cgccgtccaa	aggcgaagca	gcagcctctg	ctcctcttat	gaatatatcc	2100
atcaagatag	tagcagcata	gcacgggta	ctccgggcga	taccatcagt	ajcatacatc	2160
ccaaccgttg	gctctcgtgg	atacggcagg	cgtttccgta	gcacgcaagc	ggatagcttg	2220
tggcgcgatg	tcccgttcaa	gctccgtccc	gattgctcaa	tccgctgaag	ttcttcgtcg	2280
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cgtgtacgac	cgtggaacgc	cccgtggag	caggtgtttt	tactgccgta	tggaactgct	2400
ccagcagcct	gttactgaag	ttgtcgggag	aggctgacag	ggggagaagt	cctcttcccg	2460
gaataagggg	ggagagcccg	tagcgacaaa	gaaagcagac	atgagaatgg	caacgggtcgc	2520
tacctcaagc	ccgatgtcta	ctatgcaagc	ctgtttctcg	gttctactac	cgccaatcgt	2580
tgggatgccg	gcaattacca	acaaagcagc	ccgaatgggt	gtcactcgtg	agcagatgcc	2640
ttaccccagg	aagaactggc	agcaggccga	agactgggta	agaacaaaag	cgcgacctca	2700
gatcagaaac	cggaagctat	ccgaaaggta	aaaccgcgag	aagagtaaga	agtaacaaag	2760
acaggggaata	cgaggagcga	atggctcgca	gatgaagaaa	aagaatcacc	acataatgaa	2820
catcatatcc	ccctgcacaa	tctcgaccga	tgtagaggag	tgggagtatt	gctgtcgggt	2880
gcaaagattt	tgactatcgg	cataccgctc	atattcgttt	gaaggaagac	tcaataacgg	2940
gttacggatt	cgatccgatc	aaggataaac	aaaacaagct	tattcgatgt	ccg	3000
aggcagcgag	acttcgccga	ctcctccgga	gggacagtgg			3053

(2) INFORMATION FOR SEQ ID NO:1130

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2812 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2812

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1130

atatattcct	tgctcaggag	ggtgcccga	agctcccga	agactttgac	ccacaacccat	60
ccgttacgca	tttgacgatt	ttgggaaca	cccgtacca	tcgttcccgc	atagcgggca	120
gcggtaaagt	ttgtaattg	catccgtttt	ccggcggctg	tcgtcagcag	ttcttcgcac	180
atttgacggg	tataaattcg	atgctcttcc	cgaatgtccg	ttcgtccatg	gcgcctgctt	240
caatgcagcc	agagcgactt	cccatgctcc	cgtcatttcg	gcgtcggcga	tcttcgtccg	300
gcgaccagtt	tatagacgga	aagacctttt	tcggtcggga	taacatcttc	ttctcccggc	360
ggatatattc	tcgcaggatc	aatgtctcga	tgtggccgca	cgtgtggcag	gcgtaccgat	420
gccgcaaccg	gcgagggcct	tcgggcttct	tcgtcccga	cttcccgtcc	ggcgtgctcc	480
atggccgaca	caacatggct	tccgtataaa	ggggcttggt	ctttgtttga	tgcttcggtct	540
ttcgaatccg	aaaacatcga	gccgttcgcc	ttcctgcgat	tcgggaaact	gtccacaacg	600
gtttctcctt	cttctacagg	ctcttccatc	gatccgcgat	ggctttccag	cccgaactaa	660
cccgtctctt	cgcttttatc	ccgaaagatg	ctccctttga	gagagtatcg	ccgtcagcgt	720
ttcttcgatg	gccgctcggg	aaaggattcc	agcatacgca	cggtgaccat	tcggtagagc	780
acctttcgtc	gcgggtcagg	ctgtcggact	tttctccggt	aaggagaatg	gcaggtgggtc	840
ggttactttc	gtatcgtcca	cgctccggcg	gttaagtgtg	ccgcagttag	cttttcgacg	900
taatcgccat	aatcgggata	atctttcaga	cttctaatag	cgaagggatc	tcttcaaaga	960
tgtcttcgct	gatataccgg	tgctgtacg	gggtaggtg	gtacactttt	tctcgtacag	1020
gctttgggca	gagagagcgt	cttttcggcc	gtatatccgt	atcgcttggt	ggcttcttct	1080
gaagggcagt	cagatcgtag	agtaaagggt	gtggcacagg	attcggttga	cggaaacgga	1140
cgaaacgatg	agtgtctcgc	gcggatccag	atctttatcg	ccctgtccgc	tgctctgcgg	1200
ctttcgtatg	tcgtttctcc	gatggcttga	cggagaggcc	ggtgggcagc	gcattggattt	1260
tccaaacagg	tacgaccgga	aatcccggtg	ctcgatatag	cggcggcaaa	tcacgcacag	1320
agtgggtgct	gtactcttcc	cagggaataa	gcgcctccgc	gagcgatgga	gaggcgcggc	1380
tggcattgat	accgacaagc	cagtcggctt	cactgcgagc	ctgcccagag	gataaaggcg	1440
gtcgtactgc	cgcccgctcag	ccggacggga	agtccctcac	ggatagcctt	atcgggtgag	1500
gagctgatcc	acaggcgggtg	aaaggtttgc	ggcaatccaa	ataagcatag	atcaggcggg	1560
agatcaaccg	ccttcgcgctc	cggcgctcgt	ggcgacgatg	atgtgatcgc	ttcgggtcaa	1620
cacttgccga	tgataattgag	ttgcttcaag	gcggacgggt	cgtccgatag	gtcgttctct	1680
tgccgatctg	tcggacgact	aaccggaaa	gttcgggata	atgggcagtt	gctcgcggct	1740
gtacgtcggg	aagccgtatg	cttcggcatc	gcaagggtaa	cgaggtgtcc	gaaggcccag	1800
gtaaccacat	ggcggtttccg	gagaaacagc	cctcttcttt	gtgcgttgca	ccgacgatgc	1860
ggctatgtcg	cgggcgaccg	agggttttct	ggcaatgata	catttcatgg	ggacgatggg	1920
taagggttag	ataaaataac	cggccgaacg	gtggcgctcc	tccgtccggc	ggttcatgag	1980
agcggagaaa	agggctacat	cctgcgcccc	ttttgcgagg	ctgcttctgc	tcttcgttct	2040
cctgttttgc	ctgttggttt	cggtagggcg	gtacctgacc	ggcttttgag	gggtccctt	2100
gacgcgcggg	tagcttcggt	cgtcttacct	tcattgttga	cgggctacct	gcgtctgtgc	2160
ccttcggcca	cggctttgac	ctgttcctgc	ttttggtccg	gattaagcga	taaaaacggg	2220
gacgtgctg	ctccttgctg	taacggacat	aggcctgaag	atttcgcctt	ccttatccac	2280
catatttttc	agatacaggg	tgctccttcc	gaaagggtct	tctgctgtct	ctcggtcagc	2340
tgatacttgc	aggggttgcc	ggcacgccat	acggagaatc	tgcttcgggc	ttttgagaga	2400
gtgcctgctg	tctttgaagg	aaaggttgtc	gttgaagata	aactcgatgc	tcttttctcg	2460
gcattgacct	gaagcgtggc	atcgaacggt	ttgccgccag	cgagagcata	ccttctactt	2520
ttcacgggct	taccttcggg	cagggtcccat	gctgctgttc	ggtcagcaag	acgcttttaa	2580
tctcttgccg	aatgatccgc	ggtcggcacg	aagggcgacc	agctcatagg	tcaacgggtc	2640
gattgaacgt	agcctttgaa	gggttcggcg	tttttggggg	tcagctccac	ctgttcccca	2700
gattgcccg	atgcagcagc	gtcgcttttt	cgtcctcgct	gaaagatagc	ccatataggg	2760
aaaatcgagc	cgcggctctt	tgccgatgct	gtgatggcca	gccccagact	gc	2812

(2) INFORMATION FOR SEQ ID NO:1131

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 734 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...734

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1131

aggccttcta	aatctgcatt	ttgttcgcag	aatctaaaag	gcctgttcaa	agttaatacg	60
atcaagaaaa	acggaggatg	tccgtaatat	cttccgaaga	gataggctta	tcgcctgcga	120
ccgatcagat	tgagaaactc	ttcgcgatgg	tcgattcctc	aaaagctcct	gtaaaagtcac	180
tggtcgtagt	cagagattht	gcttctccac	tccacgcac	tgcatgcaca	tgtgctgtgc	240
ttcgaaacga	cgatcacccc	gagaggggtc	agcgatttct	ggatgcactc	cttgtttgtg	300
tagtcagccg	ttcctgtacc	tgaagacgac	gggcaaatac	atcaccactc	ggggcaactt	360
gctcagtcgg	ggtatatacc	gattggggat	atgccacat	gggccttacc	gaagaacggc	420
aacatgtggt	gctcacacat	caaaagaaat	cgatgtcctt	gacgatgacc	atttgcgtat	480
agtcttcttc	aacatcgctg	cgcaaggat	ggcttcagga	tcctcgttat	atcctttggc	540
agaaactgca	tggccttagc	cacacgtagc	ggagttttga	gcagccctca	cgcttagggg	600
cttcgccgag	caacgacagt	acttgggcgt	aatgctgtgc	aagcggctgc	aggcttcttc	660
ttttctatt	tctgtcattt	gtcagttcct	tgacgaatct	tatctcgtac	gacataaatc	720
tcccgtagcat	atga					734

(2) INFORMATION FOR SEQ ID NO:1132

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 788 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...788

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1132

attccctctc	gtcgtctctat	gatcccgaag	aatttttaca	tcagacgata	tccatagtcg	60
tcggatggaa	gagctgttcg	gtgtaaaacc	ccgagtgcgc	gcaatacaga	gttgatcttc	120
tccgacaaca	ttgccaccca	agtggcaaaa	tgggttttca	agggatgctc	acggaaggag	180
ccaaacacat	actcggtgga	agagtcggaa	ctatctgtac	aaagccggat	ccgctccgga	240
gttgtcctct	tgctccgcaa	tccgaggctg	agcgatgcc	tcagtgccat	gttccccgct	300
acgattggaa	cgaatatccc	ctgacggcag	acaagatgat	ccgtggatcg	aagagactcc	360
cgaagaggag	cagatattca	atctcttcat	gactacgaag	tcttgggatc	gctccatccg	420
caggagtcgg	gtattttcga	ttctttcgtg	cactcccttc	tttggcgaaa	aagagcgaag	480
gtgtcaaatt	gctacgccat	cggagttagat	agagtcctcc	agccccgtag	ccaagttctc	540
tccatctacc	ccataagctg	ggtaggagaa	gaaaaagata	ccggtacggg	ctgggcaatg	600
tgctgcaaca	aggagcatgc	gacaaactcg	aacaatgggc	gaacgtgtac	gtatgatcga	660
cgatcagcgt	atgctacagg	gactgggtcta	tctacagagc	gccgaccact	tctactatat	720
gaaaaccggt	ggcgggacgc	cggcaacttt	cagcccgtac	qaaacgcctt	acgatgcttt	780
caacacta						788

(2) INFORMATION FOR SEQ ID NO:1133

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 752 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...752

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1133

tctttggg	cg	gatacttg	aa	tttgaa	attc	ctcggact	ct	tgaactgc	ag	atgtagtc	ag	60
ccttcaag	tc	gccatatt	cg	ggatccgt	tca	gatctccc	gc	agcgtata	gt	tcgttcgg	tt	120
gtaaata	tacg	cccatacg	gta	tcgtctta	caca	gaaaattc	ga	gcgtatcc	ac	tctggccg	aa	180
accggat	ccg	aaggagct	gg	atagaacc	ctc	cgatcgg	gaga	cagatcat	ca	tcgcagg	gta	240
ccgtggg	gaga	gccatta	aacg	aaaaaaca	aag	agaagg	tat	ctcttcata	aa	taatgtga	aat	300
cgttggg	ttt	gcgtggaa	aag	gcagata	aatt	aacgcta	atc	gctcctgc	at	attgtttt	ttt	360
acggcgc	cagt	cgggcaga	aat	gagacaaa	tc	agtggccg	tc	aaaagatc	gc	tatagaag	tt	420
atcgaaa	gct	tcttcata	gt	ctctttcc	ct	tggatg	ggga	ggaaagc	ctt	cccctcca	aa	480
gaggata	tata	gtcggtc	agc	tccgggtg	cta	tggctccg	ga	tccctga	atg	acaccgtc	gc	540
atatcgg	gatg	gccagac	ggt	tcaaggcc	aa	atagtcgg	ac	gactgctc	at	tacggac	agg	600
tcacggg	cg	tgatcttg	tc	gaatccg	agc	ttaccgag	ag	ggtctccg	gg	atcactcc	ct	660
gtccggc	atc	atcgtag	acg	gagtagcc	ac	ttttgctt	ttt	tgcaggca	aag	gatcgtcc	gc	720
atacatct	tc	ttcagta	cag	gcagcca	aag	cc						752

(2) INFORMATION FOR SEQ ID NO:1134

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 807 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...807

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1134

gccggga	att	tgtctccc	aa	ctccttca	ac	tgtttttc	cg	tctggaag	ac	atgctgtc	gg	60
cctgatt	gat	cttgctga	ta	cgttcttt	ct	ctttctta	ct	gcttcggc	at	tggcctgc	gc	120
ctcttc	cctc	atgcgctt	ga	tctcatct	cg	gacaaacc	gc	tggaggct	tc	gatgcgg	ata	180
ttctgct	tct	tgccggag	ct	ttgtcat	gag	ccgttac	att	caggata	ccg	ttggcat	cga	240
tgtaaac	ggt	acttcgat	ct	gcggtgt	ctg	acggggcg	cc	ggagcaat	ac	cgtcaagt	tg	300
aaacggc	cga	tgctctta	tatt	gtccttag	cc	aaagaacg	ct	cacctga	aagt	acatgaat	ct	360

ctaccgaagg	ttgattgtcc	actgctgtgg	taagatttcg	ctcttcttcg	tcgggatagt	420
ggtattggca	tcgatcaagc	ggtcatcacg	cctcccatag	tctcgatacc	gagcgacaag	480
ggggtaacgt	caacagcaag	acatccttta	cctcaccggt	cagaacaccg	ccttgaatac	540
ggcaccacaca	gctaccactt	cgtcgggatt	cacacccttg	gacggagctt	accgaagatc	600
ttctccacaa	tctcctgaat	agcaggaata	cgtgtggacc	acctacgaga	atcacttcat	660
cgatatcgcc	acgtgacata	ccggcacttt	caaggccgtt	tcgcagggtg	ccacacatgc	720
ctgaatcaga	cgatcgccaa	ctgctcgaa	ttagcccttg	taagcgtcat	caccaagtgc	780
ttgggatgcc	gttcaccggc	atgatat				807

(2) INFORMATION FOR SEQ ID NO:1135

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4431 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4431

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1135

ttacccgagg	cattccatgt	atcgaatccg	ccatccaaat	agcccagtag	tgatcgaatc	60
ctacacggct	gagccttggt	atcacttcct	gtcacgtcc	ggatctgcc	caagcaacag	120
agggttgctt	acgtctacga	tcacgtccg	acccaagggg	cgaaatcccc	atccaaaccg	180
atgttgatcg	agcgagaatg	aagccttggg	cgaacacacc	gggagctctc	gtatcgagca	240
ccagacatcg	gacgttttgg	ctatcgcttc	gaagtccgtg	gccgagaggg	cggaagtcgg	300
cgctccatca	cgttgtcgat	gctgtcatat	cccatcttgt	tcaggctaca	ttgccccga	360
aatatgccgg	cggtggcagc	aagccctcta	tccagatgct	ataaacgctt	ccttgcccgg	420
ttgattaaga	gcgtaattaa	ccgcttttgg	ttgccaagac	tgtccactgt	ctcctgcata	480
atattcttgc	gcaggccgat	ccggcaccgt	gagccggata	tacgatgatg	tcgtccgaca	540
ggggaggatc	ttggtgtaga	gactatcata	gagcaggccg	gccagctctc	ctgtgtcaag	600
tttgtctgct	tctgcgccag	gtcaggacgg	ccgacatccc	caggaagagt	gtgtcgccac	660
tgaagagagc	cgcttcgcgt	ccgtttcgtc	gataagcagg	aagcaagagc	tttccatcgt	720
atgtccgggt	ctatgagcac	tcggatcttt	acattaccca	actcgaagat	ctgattatcc	780
tcagtactat	cgcacgaat	ccgggcttag	ccgtaggctc	ataaacaatg	ggacacctgt	840
ggcacggctc	agatcaagg	gtccgctcac	aaagtccgca	tgaatgcgt	ctccaatatg	900
tatttgagct	ttaccccgct	gcgtttgaga	cttcgaggta	gggcgtgatt	tcacgcagtg	960
ggtcgatgat	ggcagcctct	ccatcgaagt	gatgtagtag	gcaccctggg	ctaagcagcc	1020
tgtgtaaatt	gttctacttt	catatttgct	gaatggtatt	attgcttgct	tgtcagtga	1080
agatcaacca	cctttccggc	tcgtacagct	actttagtca	cacaatgcgc	gaagtatacg	1140
agtatggtct	ctttgagaat	gatgtatagc	cccatgcgaa	gacgaaccag	ccgaatgccg	1200
gcttgagttt	gtctccgtca	atatatggga	gagtttcatt	ccgatgaata	tcccgatgat	1260
ggcaaaagct	gttacgagag	gagaagcccc	cagtcgagac	ctgccggatt	attctctccc	1320
agaatcccaa	gagcgatttg	gctgatatga	ttacaagtga	ggtgccgata	gctgtttcat	1380
cggtaggcct	ccgaggaaga	ctaaggcagg	gatgatcaag	agcctcctcc	ggcaccgaca	1440
agccctgtga	ggttaccgac	cacaattccc	caaggaggat	cagggcataa	cggggctggt	1500
tcggcttagg	gggtctctgg	atgctttctc	ctgcatttta	gccggtctga	tcattgtgac	1560
ggatgccgaa	gcatacgtac	ggcaaacaag	agcatcagga	gcattgttccg	gtcgatccaa	1620
aactgccggg	actcaatata	cactccggaa	tcgccggtag	cagatagctc	tcgtcaggaa	1680
tacggcgaag	atcgatggca	ggccgaaaag	cactgagtag	gaacgtccac	cagcgaacgg	1740
cggaagtatg	agatactccc	gacccactgg	tagctccccc	gataaaaagc	gaataggccg	1800
tgcccaagac	aggctctatg	ccatcagata	tacgagtagc	ggaacgggtga	ggatactccc	1860
tcgccaccca	taaggccgag	tgacaggccg	attaaaatag	atgccaaagta	actgctataa	1920
gcatacagtc	tcgggtttta	tgatgaggca	aaggatcatca	atccggaacg	gcgtacagct	1980
actttgggtc	cataagggtg	attttggttag	ccctaagcga	acgatgccgg	attcttccaa	2040
ttggttgagc	agccttgaac	tacggccctg	gctgggtccca	attcatttagc	cagttgttgc	2100

tgcgtgactg	tatagtatta	ccctccacga	gttcggcttt	cttttgaatg	agggccgtag	2160
gcgttcgtcc	atcttcttga	aagcaatggc	attcaccgta	tctaaagctc	ctcgaatcgc	2220
ttgtgatagg	agcggaagaa	tgtagttgag	ccatcgggat	gctccttcat	aaagagggaa	2280
accttatcga	cgggcaagaa	aagatctcgg	catcgctctc	gatctccacc	ttcaccttgc	2340
ttgtctcatt	gtcaggcccc	caagaaaaga	catgatacag	ctttcgcttg	ccttgatata	2400
gagagcagga	tttctctgcc	atcctcttcg	gtacggatta	ccctcatgac	cctttgataa	2460
cgataggaat	ggaccggaca	tgtgcattct	cattgaggaa	acgctaccgg	ccttgtagac	2520
cctgaggatg	ccatgcttat	acagtttgcc	acaagctcag	gcgaagagcg	aaactcggat	2580
atatcttcta	tctgcttata	ggagcaaaaca	taataaaaaca	agtacgcaac	cgaaagaaat	2640
ggaacgaaag	cctttcgctc	tatctcttct	ctgccgcaat	ttaatgcttg	catttggtta	2700
ttcttttttc	ctccatatgt	acctaaaaag	gatgatacat	aggccaaaaa	cacgagcgaa	2760
aaaaaatattc	aacaacgaag	atgttactcg	gatttgatgt	ggttcccctg	cgctcttgta	2820
cattccgttt	ttcaagtata	agacagcagt	cattggcaag	agaaaaagaa	ttgactaatt	2880
ttgtcttccg	aaagcattgc	tccgaacagt	gaatttcccc	gtgtattgga	agtgaagcaat	2940
aattgaaaaa	agagagttat	atattaatat	gccacacatc	cataaactac	gactatgccc	3000
catcacctga	catcaagccc	gaacaggctc	ctattcgggtc	cttcagcaca	gcagcgacag	3060
tctctgatcc	gatccgagat	tgtagaggga	atcgtgcagc	tacatcgaat	cacatgcaaa	3120
aggatagcat	cctggctagg	ccctaccaca	tacatatccg	gactgcaccc	gtcggagttc	3180
tccgtgaact	cggcggtg	ttcttttata	tcagcatcgg	aaaaggcttt	tttgccctgc	3240
gatttatata	caaaatcact	tacgatctat	atattttatca	aaacgattta	aatataaaaat	3300
gaaaacgatt	tgtatacaaa	ttgaaaacgc	ttatatacaa	atcgttgtag	ggcttggttt	3360
aagtggaatt	tcgatctatg	gagttccttt	tccctccact	tttaccttgc	ttttctctc	3420
tctacagata	ttatttggaa	tcgttccaaa	ctcgtcttcg	ttgttgaaaa	cttttttggg	3480
catgattttt	gagcagatta	ttattttcgt	ggctctccctt	ttttcacagg	aatagctttc	3540
agatttagta	atgttggttg	aacgcacagc	tcggagattc	ttcttttatt	cgtaatcgtg	3600
ttaattgctt	ccgccttttag	acctttgctt	accctccatc	tctccctgcc	ttcggataac	3660
cttttatttg	ctttactttg	cgggcataat	aatttgtccg	gaatgaatcg	gtttgattat	3720
atcgagtcgg	aggcgccctt	gcgggcctct	atacggcttt	caaggccttcg	aagatggctg	3780
ggtagctctg	ataaccaaag	ctgacatcca	tgagagcaat	tctactttgc	acaaggggga	3840
gtcgcagcgg	ttactgctgc	tgacgatgca	cggacaacca	ctataacgat	acggtcgaag	3900
caggtcgggg	cctttgtgag	atgaagccgt	aagggtactt	gccgaagagg	ctccggagcg	3960
gatcgatgat	tgatccgttg	ggggatgctg	ttcgatacgg	aagctgatgg	cctattgggtc	4020
tggggcttgc	aggcggacac	caccacaagc	ggattctgca	tcgagggttg	attctaccgg	4080
taggatgctc	acgagcttta	tgatcgatag	cgtgctcaaa	cttctgcaat	agagatattt	4140
gtcaatcacc	aagcggctga	attgcgatag	acgacctcgg	ttgccgtggc	gtacgtacat	4200
gggattgggg	acatggcgtg	aagtcgtttt	ctatggcaag	catacgggtg	tgccaccggg	4260
gggtcggctg	ccatctaccg	aagatccacc	aatccgcagg	gtaccctcgg	agtgggattg	4320
ccctctgcta	tcttgccggc	tgtgagggtg	gcgacatgga	gttgtccaat	ttcatcccac	4380
aagctctgta	caatccgaaa	ggagaagcct	cctgatcagt	gaggccgtac	g,	4431

(2) INFORMATION FOR SEQ ID NO:1136

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 746 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...746

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1136

gattagtttt	tgtttcattc	gaatgaggta	gtttttgtat	ttggagacaa	tagttacgga	60
gccaagcggg	gaacagacca	ggaagcatcg	ggccggagtc	gtaçaggaag	cgatcgtgca	120
agcggctttc	gcgcccttgc	caaaattttat	tcgtaccggc	ttcacggcaa	agccacccca	180
agtgtcagga	cgtggccagt	ccgaccggca	tatttgagcg	actccttcat	gaattcctgt	240

acgataaaga	acgccccggt	ataggacgac	tctgtggcga	aatgcgcgcc	cctaccgact	300
tttgtagcga	cgtgtagcaa	aataagcatc	gctaagctcc	ggcctaaaat	acgtacatcc	360
ccctccacat	gtatctgacg	ctccagttcg	tgcagaggaa	tgtgagacag	acgtgcggat	420
tggcagccat	ttgctgcccc	tgcgactctc	atagttgctg	tagaagataa	attcgttggt	480
cataaactcc	tgagcaaaac	ggttcgcgta	ctgggatgac	cgtcaggagt	agccgtccca	540
cgataacggc	tgtaggctca	tatgttttgg	cttcgaccgc	atcttgcacc	atctggtgac	600
aaggtcgaaa	ggagtaggtg	tcaggtcgct	ggcgggaaggc	ttcgttgtca	tattcccgcg	660
tgatattttc	gaaatgtaaa	tccatgtttt	gnngntttta	ttgtccggac	aaagttatgc	720
cattggaatg	gtcgtccaaa	atcctt				746

(2) INFORMATION FOR SEQ ID NO:1137

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 619 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...619
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1137

gcccggacaa	gggaaaaaac	tcagcttcat	tgcacaagaa	atcggcagaa	aatcaatacg	60
ctcggctcca	aaagcaatca	tgtggagatg	cagcaaattgt	cgtgcagatg	aaagacgaat	120
tagaacagat	caaagagcaa	gtactgacgt	attatagcca	ttccactaca	tatttagaca	180
aaattcccca	tgaccaacta	atcatcatct	cggccccatc	cggaacagggt	aagagcaccg	240
ttatcaacga	cttcttacgg	acagagagct	taaccttcat	ttctctattt	ctgcaccagc	300
cgtgcacctc	gtggagaaga	gcagaatgga	cgagagtatt	actcttgtct	ccggaagaat	360
tcagacgaag	aatagaggcc	aacgaattcg	taagtacgaa	gaggtgtaca	gagacaaata	420
ctatggcacg	ctcaaaaagt	agtagagcgg	atcctgaaag	aagagaaaaa	tgtcattttc	480
gacgttgatg	cgttggagca	cagagcatca	agaaatatta	tggagatagg	gcattggctt	540
ctttattttg	cctccttcta	tagaagagct	gcgttctcgt	ctgcaaaacg	aggtacggac	600
tctatggaaa	ctattaagc					619

(2) INFORMATION FOR SEQ ID NO:1138

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 470 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...470

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1138

ggccactgtc	gtgaaatctg	tctctccgtt	cgggtgctat	gggctttatt	tctccattgt	60
cgggtgctac	atctttacgg	gccttacgcg	tttcgatgga	acaaaatcaa	gcagatgctg	120
gctcaaacgc	aaggattcga	agagggaatg	tagttcgcaa	agtagccctg	atgggagcct	180
tgacgctcta	tctggattca	tcaatctttt	cctctatctg	cttcgcttct	tcggccgaag	240
ggactaatcc	ctcccattga	aaagacaaaag	acaataataa	aaatccctgc	caactggatc	300
gttggcaggg	atttttcatt	gaaacacccg	tagtcnatag	atctcntaca	actacattga	360
cgatcctccc	ggggactaca	atgacttttt	tcgactcttg	ccttccancc	aacgggctgc	420
ttccgggaac	aataaggctg	ctgctctaca	tcttctttgc	tcatatcggg		470

(2) INFORMATION FOR SEQ ID NO:1139

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2989 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2989

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1139

ccgtggctca	aaagctcttc	ccagccgcgc	tcgggtgttg	cttccgcttc	tctaccggat	60
tacgcagggc	acgatccctt	cggcgatca	gcccgatgcg	aatgtggggg	gcataccgaa	120
tgtgggagga	atctccgaag	catccagacg	ccccagcggc	cgctggtgcc	ggctcccatg	180
tagaagagtc	gcccacctgc	tccatgcgtg	gtatgatttg	ttcgaccagt	cgttcgatca	240
tcggatagtc	cggtcgacgg	cttcggccac	tttctgtccc	tcgcggttga	tgtctcgagg	300
atctctctgg	tcgacttttc	ttccagtcgg	tcgtacaggg	aagctgttcg	gtaatcttct	360
caaacatgat	tgttgtggtg	atattgtata	agccctccat	cggactttgc	agtaccgatc	420
cgagcggtta	gcctcttttt	tgatgacgct	actcaacact	tcccagataat	gaaaggctac	480
agagccgatg	agtggagggg	gagatcagga	cgattgtatc	ggagcacggt	gcgcacaaga	540
agtcgtcgaa	actattctgt	acaaggctat	atacagccgg	aatgtccaat	gctgcgcgat	600
aaagggggag	aatccggcca	agaagcgatt	ggggaaagct	ttcgatagac	actctcgata	660
atatcggcag	acgtcaggcc	atactctgca	ggaaagcttc	gcacagcccc	tccggcatct	720
gcccccttgag	aaggcgccga	tgaacagccg	tcccaatacg	gtcccgctcc	cttcatctcc	780
gaggtatagc	ccagtgggga	aacgttggct	ttgatctccc	gaccatcgaa	cagcaggaat	840
tggagcccgt	acccaatatg	caggctatcc	cctcggaatc	gcacagagag	cacgggctgc	900
accgagcata	tcgcccggca	cttcgatgcg	gcgcagtggt	gcagcatact	gtccaaggct	960
tcatttagca	taggggcttt	gccggtgtac	accctgcacc	gtagaaatat	acagctcgga	1020
tagaggaggt	ttttggccta	tggccggcag	gacttccgaa	cgcagggcag	tgtctattcg	1080
ttcctatcct	gctgaaatgg	attgatacct	gacgtttgga	atcgtccagg	ctttttccct	1140
ccttggtctat	gcaccaatcc	gtcttggtgg	aaccgcgtct	ccaatcagaa	tcatgatcgt	1200
atttcttttt	tccggtcaca	caatgcaggc	ctatggcggt	aaagaaggca	ttgaagatga	1260
ggagttcgta	actgatttat	agccgcggaa	ccattgctcc	gaatggctct	ggagaatgta	1320
gcaagcaccg	gagcaacaag	ggctgccaga	gggacgtatc	tgtcccgtac	tgcccttttg	1380
tggcgatgac	gaagaaaaac	agtcccaata	tgcggccata	atgtaactgg	ccagtagcta	1440
gacggcatcg	atgacgctcg	tgttgcttac	atattaagaa	agtatatgac	cagccccatg	1500
acgacagcca	tgccgatgtc	acgcgatggc	gtatacgagc	cgattgctct	tcgcttcggg	1560
ggctgtgtct	tggaggatgt	ccagcgtgaa	cgaagtagtc	agagccgtca	gggcccagcc	1620
gcttgacagag	aaagccgacg	acaccagtcc	caatatgaac	aggatgctac	aacaggcgga	1680
aaatagctgc	ccgtggccaa	gagtgggaat	agctctcgct	ttggacggat	gggggatgcc	1740
gtggctgtcg	gcataggtat	tagacagggg	accgagcatg	aggaagagtg	ctatgatgaa	1800
gaactgcac	acgcgcgggt	gaggacgttc	ttctgcgaat	cgcggtagtt	cttgacgtc	1860
agttgcgctg	catcatgtcc	tgatccaacc	ccgtcatagc	tattacgggtg	atacgccctgc	1920
cagaaaactgc	ttgaagaaat	agcgtttgtc	gttcacgtca	cgaagaaaaa	catacggggag	1980

tagtcgctcc	cgccgataag	gtcggtcgcc	ctccccatct	gtcgcccaag	tcggcagaaa	2040
tatagacgat	gcagagtaga	ccgagacgat	gaggcagagg	gtcttgaacg	aatcggtcca	2100
gatacagcatt	ttactccgcc	cttgaacgta	tatagccaga	cgaagagcat	cgtcagcaca	2160
cattggccat	aaaaggccat	ccgaacggtt	cgaatacgat	cagttgagcg	tcaggcatac	2220
gagaaaaagc	cggacagccg	caccgagcat	cttgagatga	agaaaaacca	tgcccccgtc	2280
ttgtaggacg	agaatccgaa	ccgtcttgca	agtagccgta	aatggacatc	agattcatcc	2340
ggtagaagag	aggatcagga	cgaaggcaat	aatcagttgt	ccggccacaa	agcccagtac	2400
ctctgcaggt	aggagaatcc	gctgccggcc	accatgcccg	gcacggatac	aagggttactc	2460
ccgatatacc	ggagccgatc	atggcaaaaag	ccaccatgtc	cacgggggatt	tgcgattgcc	2520
cacaaagaag	ccggcattat	ccgctttggg	cccgtgacaa	aggaaatacc	gaaaaggaag	2580
acgaaataga	cgataacgtc	agaatagcta	cgagaggact	catatcaaat	cattgagacg	2640
ttaggacagt	atcttcttaa	actctctgca	aagctacgga	aatacgtcaa	gtactcgcaa	2700
ccagcataac	agacttcccc	gtgagttgca	tggtcgtgct	agtgagatat	cttcagcaga	2760
cttcgggcta	caccataggg	gttgctgggc	tatctgtaga	gcttgtcgag	ccacgccgta	2820
gaggccggat	cgttatactc	taggcttatt	tcgttatgtt	ctaaggaatt	cctcgttatt	2880
ccttacggat	ttctccctac	gctctatagc	tcatttccat	acgctctagg	ggatagccaa	2940
acacaccgtt	cagcaaggaa	aagaggggcg	aaaaaaactg	taaaaacg		2989

(2) INFORMATION FOR SEQ ID NO:1140

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 362 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...362

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1140

tgggttaagc	gtacatatat	acaaaggtag	cacagttttt	aattaacttg	cgtaatagcg	60
tctgtaaaac	agattggcta	aagatgttat	ttgagtcctc	tttgtagatc	gaaaaaagat	120
atgaaacaga	cttttcgctt	tatcaaacia	ttgaacggat	tactcacctg	aagccgaatg	180
ctacgatgat	gttggttttg	cttcgggtgt	ggcagtcatc	atggctaata	gttcggttag	240
tactactatc	atgaaatttt	agagtaccct	atcaatctta	cgatcggagg	tcataggtct	300
tttctcatca	tggagagacc	atgaccttgc	tccagtttgt	gaagatgtgc	tgatggtcat	360
tt						362

(2) INFORMATION FOR SEQ ID NO:1141

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 792 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...792

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1141

```

agacgtacat tcacgggaaa ccattcatag caccgaagat accctgaagc ttcttgctga      60
taaggcagga tcttggccaa agcacgtacg cgaccttcgc cgtctcgctc agaatacattt      120
cgcgcatggc tttgatcttc tcgccttgaa gaacatatgc tccgtacggc aaagaccgat      180
acctacggca ccgaagtgcg agctatctcg gcacgtgtag gactatcggc attcgtaaga      240
acttttagctt ggcatactta tcggccaaag ccacacagat gccgaaatct tgatcatttc      300
ggcggctttc gtctccacct gtccttcgta tatctcaccg gtaaacctgt gatggagatg      360
tagtcgcctt ctttgaagag ggttccatcg attctacggt acgtgcctta tagtcgatgt      420
tcaatgcacc tgctcccgat agcagcattt gccataacct ctggccacta cggcagcatg      480
cgaagtcata ctccgcgagc cgtcaggata ccttcggcgg cagacatacc ggccaagtct      540
cgggcgaagt ctcgatacgc accatcacca caacgttgcc atcctcttcc actgagcggc      600
atcgctcggcg aagaaaaacga tctgacctgt agcggcaccg gcgaagcagg caagcccttg      660
gtcagtacac gtgctctaag gagagcgact tgtcgaaaat ggggtggagc aattcgtcca      720
gcttggttagg ttcgagcgca taagggtctt ttctctcgctg atcataacct gacgcaagag      780
atcctggcga tc                                     792

```

(2) INFORMATION FOR SEQ ID NO:1142

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 759 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...759

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1142

```

attatatctcc aaaacgtaat ttctcctacg aaaaggggaa gcaagtactc gcaatgtatc      60
gttcacggcc aaacaaggag aagtcacagc cctcgctcgtc cgtcgggtgg aggaaagagc      120
acatcggccca agttggctgc acgctttggg atatagatgg aggaaagatc tttttgggag      180
gggaagacat ttcgcaatcg aaccgaaac cctgctacgt cattatgcca tcgtcttcca      240
agatgactgc tcttcaatgc atcggtggcc gataatatcc gcataggtaa acctatgcta      300
cagatgaaga gctcaaacgt gtagctcggg tggcaagatg cgagaatttg tagatcgtct      360
gccgaatgga tatgacactt tgatcgggtga aatggtgaga acctttcagg aggtgaacgt      420
cagcgcattt ctatagccag actttactca aggatgctcc gattgtgctg ctggatgaag      480
ctacggcaag ctcgatgttg agaatgagac actgatacag gccggtatat ccgaactgac      540
aaaaacaaga cagtcctcat tatcgctcat cgtatgcgca ctgtagccat gcccataaga      600
ttgttgact caaagaaggg actgtagccg aatgtggagt ccggccgaat tgatggccat      660
gaacggtgtg tttgctcgaa tgggtgggcg cagaagtaag gaaacgtgag ttcgatgtaa      720
gcgatatggt gccgatctca taagatccgc catatcgat                                     759

```

(2) INFORMATION FOR SEQ ID NO:1143

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 671 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...671
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1143

```

gggaattttc aagaaaccga ttaaaaacaa attaatcggc ggcacgcac ttctcccgat    60
agcctgctct attcgatgcc cgatcacaga agtctgacgt cgggggcagc atccgctata    120
atcctgcacc ctattatcgt ttggacagga cggacgtaag cggatgacg gggtcgggtac    180
acgcgctccg ctatttgggt cacttacggt caagccatac cgctcggacg agagcacgac    240
agcgatacat ctacctatcc ggttcggtag ggcaaaatct ccgactcaat ccgtgcactc    300
gctctactac cacttcacgg tgggcagtta ctttcgctcg catcggtaca cctcgacgaa    360
cagcgctatc tcaaagctga caatgctttg ttcaaatagg aggcacgctc cagcacagtt    420
tccaaaccct ccctccttat tttatacgga tcagaacttt ctcatccttc agactcgctg    480
gtctttcccc cattgatcac taatnccgnt ggggcatcct attcgcttcg ttccagtcca    540
ccttcacatc aatacgtatt ggggatgcca caaagaccgg atgccttttt cgaaataggc    600
tattctcgtg gtacgatcgc acaaatcggc atcttcttgg cgcatacaat ttccataaag    660
attacggcct g

```

(2) INFORMATION FOR SEQ ID NO:1144

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 3295 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...3295
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1144

```

gtctcctata aggaacggag cttttcgatg gcttcctccc tcgtataatg ggcggaacgga    60
acaagccttt tttgtccaaa aacttgcgga caaaccaacg gcgggcttgc gttccccctt    120
gacatagaag catccgcaga agagaccccg cctcttagca cgcggaaagt ctctgcaaag    180
gcacggctct tgtcgggaag acgtgaaagc cattcatcga gagcacgagg tcgaaagccg    240
catcgggaaa ggcaggctgc cgacatcgcc ttgccggagc gatacgttgg ttattgctct    300
gcactgaagc gcatcgctgc tatgtcgagc atttccctgc aatgtccagc ccgacaatct    360
cggcttgagg catccgcctg tatttgtcat agtgaaaatg gctgttccta cggggacgctc    420
gagtattctg ccctcgaagt tccgggaatc atgtccagca ccgagcctgc gatgatattg    480
tcgtccgttt ccagagacag tgcatataga gccaaagacca ccatttccgt ccggtgaggc    540
atcgctcgtg tggttagtca gtcggttata ggcgtttttc tgcttcattc cattcttgat    600
tttgttcgac attctgtccc ttatgctatc acttgggata ccgaaagccg gtatccatgc    660
atcgagccga ttaaggcaaa ggattgatag gaagaaaaat ccattcctgag atttcgattg    720
ttaaaaaactg ctctagcctg atacacaaag atatagggtt tgcccacagc atacaatcgc    780
taaaatggtg attttcacag tcttctttcg cccattttct tcccgtttct cccatcggtg    840
ccgactcctt gtaaaaaacg acagcaaacg atccaatccg gagtgtccta aaaaaaattg    900
aatccaagag caaaaaagac agcaggggaa gacgtccggt gcgttccttc ccctgctgta    960

```

gttttatgat	ttgtaacctg	cggtcagaga	atcgaatcga	ggagactttc	gtctaccaga	1020
tatggaat	gatatggtat	ccatccgcgt	gagtcgtatt	gaactcttcg	cttactgtat	1080
ggcattggga	ttgcgtgccc	atgagcgtcg	ggccactccg	ccatttaatc	ccaaagcatg	1140
gccgagcgca	agatggcatc	cacacgttcc	gaaccacgag	caccatgccg	aatccgccgt	1200
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agcagcgttg	ccgaaaaaca	ctgcacggcc	atatcggcca	tcacattgct	accgtccttg	1320
atatggaggt	ctcgcggaaa	ggactgtccg	taccgctcac	atcgtgatgg	tccgtccgag	1380
catgataggg	ccaacctcgc	cacggcgtag	catttcattg	agcgcagtgc	tatgttcatt	1440
cgtccgagtg	catacctgata	gaggatacgt	cctgtgtacc	tacgacgagc	tgattcttct	1500
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cggcatggca	actggtctga	tcggaaagga	gatcgatatg	ataccttcgc	tcaaagcata	1980
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gcgaccatca	tggaagtgg	tgatgatcac	gcgcggagca	tcaggcttgg	cttgaagagt	2460
cccaaaggat	gaccgctttc	gatcacgagt	gtctgctcgt	ggtcactctc	cggaggtact	2520
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gagttcgtag	ggatagaggc	gatgtcgaaa	cagagattat	tgtcgatcat	cacctgaaag	2640
gcctttcttc	tatacacccg	ccttcgtact	cgtcgatgct	tttggtttg	agatcccttc	2700
gggacggaag	cgatagccat	agatctttcc	acgggttctc	agctctcgag	gaattcggga	2760
gcaagctcct	tatgcaactc	cacggggata	taagcaatgc	attcttcaag	gccgtgcgtg	2820
tctgtgaagg	ggtaagacgg	aaccgcggtc	aggagcgcg	cgaatacctg	ctacaaactt	2880
gggataagca	gcagcgtatt	gtccagagtg	aacttcatta	tttgatattt	tgtgatttgt	2940
gtcagtagca	agccttagag	aaagtgtcca	tcgctaaggc	ggtgccaaat	accatttttc	3000
gaacaccgag	ccaaaaaagt	ctctaatacg	gtgccaatac	aactttgcat	actagagaaa	3060
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aagccttatg	gcgaacaaca	aaaacgaaga	cagccacctc	gtttgcaaag	cgaacaaggt	3180
ggctgcctat	atgtatgcag	ggctatggaa	accccttacc	ctcagagaac	gggatcgacg	3240
aagtcggcgg	gctataatct	gcgtcttcna	agtgtacttc	tcttgaacgt	ttcan	3295

(2) INFORMATION FOR SEQ ID NO:1145

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2828 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2828

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1145

atgtaacggc	ccgacatggt	ggaaaaatag	aagcagcagc	cgtcggagag	tgaacgtggt	60
gacgaagatg	aaagaaatcg	gcgcctcat	cggaggagag	gcaatggcgg	agtaatcctt	120
ccggagcttc	attatggacg	cgatgcatgg	tgggaatagc	cctattcctc	acacatatgg	180
ccaagcgcaa	ggaggcgtga	gccgcattcg	agccgaatac	cctgcatact	ttatgagcaa	240

gcagcagtgg	acaccctg	aggtaccgat	acgcagcgtc	tgcttcagac	catgtcgaaa	300
ggtataagaa	cgaacagatc	agtaccgtgg	acggcgtgaa	gatgactttc	ccgacagctg	360
ggtacatatg	cgcaggagca	ataccgagcc	gacgtcagga	tctacaccga	agcccgtagc	420
gaaaagggaag	cacaggactt	gccgatcggt	tccgttcgga	gatagaacga	gaattgtaa	480
ccggctcctt	agaatcaaga	caacagctta	acagatcatt	cattggcaag	aaagaaaaag	540
agcctcccct	cattacaggg	gtggaaataa	cggatctggc	ggcagaggca	atgctctctg	600
ccgcattgat	gatatggtga	tggttcgtgc	tttcgctcac	cgggcgaccg	ttgcacgggt	660
caggtggtaa	agaaaaagcg	caacttatgc	agggacgaat	cgtctcgatc	gaaagccccct	720
caccgatcag	gaaagacctt	tctgtacgca	cttcaccgtc	tgccggcgat	gcaaattggca	780
gcatttccat	acgagataca	gctccgagcc	aaggagcagc	aggtgaccga	tgcttcgtgc	840
gtctgggtaa	ggtggagggtg	gaggagatgc	agccgatcct	cgatcggagc	agacggagta	900
ctaccgcaat	aagctcgaat	ttacattcag	cacaaacgtt	ggctactgcc	cgaagaggta	960
caggaagtcg	atggcgactt	tctcccaggg	tgcgatacgg	acttggaattc	catatccccg	1020
gcatgttcgc	aaggtatttg	acattcgcga	atgccacttg	ggggctaagg	tatcggacaa	1080
atagctctct	tcatccgcga	atattgcatg	caggatccgg	agcgttacct	ttcttcgacc	1140
tgagaaatca	ggaaggcctg	atgcgaacgc	tgatgaccgg	actacatcca	caggagaact	1200
gatggtagtc	gtgggtcttct	ttcgcaagat	gttgctgctc	gagaagctct	gcttgccggc	1260
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gaaggactga	agttcaagat	cggggcttaa	gtctttctac	cgaccaatag	ccggcaggcc	1440
taccaacttt	atcggatagc	gcgcgaattt	ccggtctcac	aggggacgaa	ctgggttacg	1500
acctctatag	cggcacggga	cgattgccaa	cttcgtagcc	ggacaagccc	atcgggtaat	1560
cggtatcgat	agctacccga	agccattgag	gatgcccgca	cgaacagcct	actgaaatga	1620
tagagaatac	cctcttctat	gcaggagata	tgaaagacat	cctgacaacg	acttcatcga	1680
acagcatgga	cgtccggagc	tcgtcattac	ggatcgccct	gagccggcat	gcacgagagt	1740
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ccacacaagc	ccggattttg	ctctgctgat	ggcagatggc	agataccgag	ccgtaaaatc	1860
cctccggtgg	atatgtttcc	ccacacccac	cacgtagaga	atgtggtact	ctcgttcgaa	1920
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actataaacc	cttcgcgattt	tatacttaaa	acccattgga	gagatctgac	aaatccttgg	2040
gtagatcgag	aaaaaactct	agtactaaat	gtgttttctg	tagaaagtga	cgcgagaatt	2100
ttggcgctaa	accagtcgga	tatgaaatgg	cgtatgttgc	atthttgccc	acatcgtcac	2160
cggaaaaaatg	gaacctatga	ccaatccggg	tttaattgct	ctctttttgt	tctttttgtg	2220
agaaacaagg	ttgtaggacg	atgatacagc	taacaccccc	ggtgagaatc	cggtaataag	2280
agagaggttg	atctcttatg	ccataagctc	tttttcggtg	gttcctgttt	cagtttgga	2340
gttggttctt	attgcgtcaa	gccggatttc	gcacagagat	caatcctttt	gggatcatgt	2400
aaatcccctg	tctattgccg	gatgtatcgg	ccgattgctc	gatcctgtac	ttatcaggca	2460
gaagagttgt	tcgaatacga	tggtctatct	catagtctca	tcatacaggga	gctttttctc	2520
atgcaaaaaa	agaagaaaacc	ctgcagcact	caatgacagc	ctacatgtcg	gtcacagggc	2580
tttgcttcgt	tccgacagct	ttctacttac	gtgggggacg	ggctttgtct	a'caactatgt	2640
cagtgcataa	aggtagtggc	taattgtcat	aaactgcccg	aacgcctctt	tcgtagcaga	2700
tggtcggcat	tgacgactta	ctggccgtct	ggatccctct	cataagcgac	tgctgagttc	2760
ttctcccgat	cgtagaatca	ttcttacggg	cagcccgtac	gtcatcttcg	cgatggagct	2820
gtaggaaa						2828

(2) INFORMATION FOR SEQ ID NO:1146

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 884 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...884

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1146

ttgctcttaa	gacctgcaat	gccatcatta	ttgcccccca	ccccagatca	aaaaatgctc	60
tgcacacgca	gttcgtctga	tcaaagaagc	tatcgctcgt	tcaacgtacc	ggaaggatg	120
gttcagatca	tcgaagaacc	cagcatcaga	agacgcagga	actcatgggc	gccgtagacg	180
tagtagttgc	tacgggggta	tgggcatggt	gaagtctgca	tattcttcag	gaaagccttc	240
tttcgtgttg	gagccggtaa	cgttcagggt	atcgtggata	gcaacatcga	tttcaagctg	300
ctgcagaaaa	aatcatcacc	ggctcgtgctt	tcgacaacgg	tatatctgct	caggcgaaca	360
gagcatcatc	tacaacgagg	ctgacaagga	agagttttca	cagcattccg	caaccacggt	420
gcatattttct	gtgacgaagc	caaggagatc	gggctcgtgc	agctatcttc	gaaaatggag	480
ccatcgcgaa	gatgtagtag	gtcagagcgt	tgccttcatt	gccaagaaaag	caaacatcat	540
atccccgagg	gtaccctgat	tctcgttggt	gaagctcgcg	gcgtaggaca	gaagacgtta	600
tctgtaagga	aaagatgtgt	cccgtaatgt	gcgcctagc	tacaagcact	tcgaagaagg	660
tgtagaaatc	gcacgtacga	acctcgcaac	gaaggtaacg	gccacacctg	tgctatccac	720
tccaacaatc	aggcaacatc	atcctcgag	gatcagagct	gacggtatct	cgtatcgtag	780
tgaagctccg	agtgccacta	cagcaggcgg	tcacatncaa	aacggtcttg	ccgaaccaat	840
acgctcggat	gcggatcatg	gggtaataac	tctatctccg	agct		884

(2) INFORMATION FOR SEQ ID NO:1147

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2209 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2209

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1147

ctctagagga	tccccgacg	tatcattcct	aatctaccgg	ataggaatat	tttcttctga	60
accgtataag	cccatagata	tgatacagaa	tatcctcaag	ccataacggg	tattgtcgtc	120
ctcggcctga	ttattttatcg	tttggttgtc	tctggaagcg	aaaagattcg	ggtggagcat	180
gctccgggttg	ttcatcaaat	ccgattgtgc	cttatcttcc	aaggcgacag	agaagaagaa	240
caatcatcat	ccctcaaata	aaactctcat	gaaaacagga	cggcaatact	atccctcagt	300
atccggcagc	gaatcttctc	tatcctcatt	attttattga	tagctttgct	ctaataccgg	360
cttggtacaa	cggcatgtgg	gttttggtag	ctccttggtg	gttatcattc	ttcctgctgt	420
aggatggagc	atagctatca	tccacgctat	acggagggtga	cagaggaaca	aataatcgtc	480
aagcaaatat	ggggcaattg	gtcttcgaca	ggaaggaaat	ggaaatagtg	cccatcggca	540
ggacgatctc	aaaagctcgc	ttcgcacatt	cggcaatgga	ggtctattgg	ctatgccggg	600
tattttccgga	ataagaaact	ggggaagtac	cgtatgttgt	aacgcgcttg	aaagacttat	660
cgctgctcac	ggatcgcaac	ggcaagaaac	ggtgatcaac	ctgcgacagg	tataacccat	720
atagccggcc	gaatctcatc	atcaacgtga	gtccccaca	agggtaacct	tatctcatca	780
taactgcttt	tagtttacgc	gccccaaatt	tccggcttat	caccctgaa	aactggtgcg	840
taaaactttt	tgttttggcg	cgagaaataa	ataattcccg	cgagaaacga	aaaacatctc	900
gcgccaaaac	gggaaaattc	tcgcgcgcct	ttcaggaaag	gcacgcgtca	cttttttata	960
ctgacgactg	acgtgacgtg	actgaaaaaa	tgaggcttga	ggaggtcaaa	aaaagcagta	1020
attgtgaaga	acatcggaac	gtttccgac	agttttacgc	caagatcgat	attgcaactt	1080
gtaatttcaa	atagtgtcgt	ttcctgattt	cgtttgactc	ttgggagcaa	tcctgaggtc	1140
gcttgcttaa	tgttgcaccg	gtggggggaa	tctgcagttg	atcacaatga	agagagtaac	1200
gaaaagttat	tgttaactttg	ccgtgttttg	agagatatga	ccatataatg	tccaatctat	1260
tagcaacaag	acgataaaaa	acaaatggaa	aacttaaaag	acattcagcc	cagagaggat	1320
ttcactggga	agagtttgag	gccgggtggcg	tccatgctgc	cgtgagtcgt	cagagcagga	1380
agctgcttat	gacaaaacgc	tcaataccat	caaggaaaag	gagtggtaat	gggtagggtta	1440
actgctatca	acaagcgtga	agtggttatc	atgtagggtta	caaatcgga	ggtgtggtac	1500
ctgcaacaga	attccgctaa	atccccgaact	caaagtggga	gacgaagtgg	aagtttatat	1560
cgagaatcgg	aagataagaa	gggccagctc	gtcttgtctc	accgcaaggc	tcgtgccttc	1620

gctcttggga	gcgcgtga	gaggtctctg	aaaaagacga	aatcgtaagg	gctatgtgaa	1680
gtgtcgtacc	aaggggtgga	tgatcgtcga	tgtatcggta	tcgaggcttt	cctcccggga	1740
tcacagatcg	acgtgcgccc	cattgcgact	acgatgcatt	cgttgagaag	acgatggagt	1800
tcaagattgt	gaaatcaatc	aagaatataa	gaatgtagtt	gtttcccaca	aggtgctcat	1860
cgagcagagc	tcgaacaaca	gaagaaagaa	atcatcggca	agctcgaaaa	aggcaggtac	1920
tcgaaggat	cgtcaagaat	attacttctt	acggagtatt	atcgacctcg	gtggagtggga	1980
tggtcttata	catatcactg	acctttcatg	ggtcgtgtgg	ctcatccgga	agaaatcgta	2040
cagctggatc	agaagatcat	gtcgttatcc	tcgactttga	tgaagatcgc	aagcgtatcg	2100
ctctcggtc	aaacagctga	tgccctcacc	cttgggatgc	tctcgacagc	gagcttaggt	2160
aggcgataag	gtgaagggta	aagttgtggt	gatggcagat	tacgggctt		2209

(2) INFORMATION FOR SEQ ID NO:1148

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1019 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1019
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1148

ccggctcactc	atgatcgaaa	gctcaatccg	gatcaaatgg	tctatcggtc	gaagtctacg	60
attatcgttc	ggcagctttg	cgcgagcatc	agctcaagcc	gcaaagcgca	atctgaatac	120
ggacatcaag	gtagacccca	acgccgtgtg	atgatatcga	aagacacggc	tttcgtagac	180
gaaagcggca	atatcacagc	gaaaccatta	cgcgtccgct	tagcagcgaa	tacgattttc	240
tcaaccatac	atcgtaaccg	tctatcccga	tgagacctgc	tgggtaaatg	atttcccaat	300
gctcgtaccg	agattttatac	gagaatgtat	ttcaatcacc	cggctacgat	gattatcccg	360
tagtaggtat	ttcatgggaa	caggctcagg	cgtctgtgcg	tggcggtcgg	aattcttccg	420
caaaggtatt	cgtttgcctg	aggacagatc	atggacgact	tccgtctgcc	cactgaagcc	480
gaatgggaat	tgctgcccga	atgggcgatt	ccaacaataa	atatccctgg	agtaccgaaa	540
cttgaggaca	ggacgggggt	gtttcttggg	caacttcaag	cccggggagg	agattatacg	600
gctgacggtc	atttgatacc	gtcccgcgta	tccagttttc	gcccaatgac	ttcggttgt	660
acgatatggc	gggcaatgtg	gccgaaggac	cagcacggca	ttttcgagat	cggactcaa	720
acaaatgtcg	gacataatcc	cgaactggaa	tacaaagctg	cgctcacgga	tcggtacatc	780
ctgagcaaaa	ggtagtacgc	ggtgggttcg	ggaaagatgt	ggcccgttcc	atcgtctggc	840
tactcgtagc	catgaatacc	agaacgtagg	tcgttcctat	atggattccg	ttgtgtaccg	900
tacttccatt	gccttctctt	ccggaaaggc	tcttaagagt	tcgcgtcgca	agcacaaaag	960
aaataagtat	tcgcccacac	atattcaaaa	caaggaaaaa	caagtattat	gggtcatta	1019

(2) INFORMATION FOR SEQ ID NO:1149

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 4232 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4232

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1149

ttgttcagct	tctcattctc	acgatagtaa	agcacctccc	ctcgcagaca	agctggttca	60
attcgggtctg	tagatactct	atgggtgtaa	gatcatttca	gctcttccct	tattcaattg	120
agccgcgaaga	gcttcgagag	agataggatg	tggtttattat	caccggcgat	tgtgggaaga	180
gcttcgtaca	atccctatct	ttttctgtga	tctgaattga	tttactcctg	cttgcgacaa	240
cttctgcacc	cgctcattca	gatagttgag	cgcatgtacg	gcactattcg	ccttggtctt	300
aaggatacat	agattttctt	caatactcca	ttctcggtcg	cacgcctaag	gtttgctgct	360
tagcgcctcg	ttcatcgcca	tgagtctgaa	tgtaattgta	tcgtctgtgg	tctgtggtgt	420
gtccttgcca	tcaggatttc	cccaacggac	atacaacgat	tgcaaggcata	ggctatctgt	480
cctaaccaat	ggggcgattg	aaattaagag	tctgatattc	tttatcatct	acgctcacia	540
gtttcgatcc	ttcttagcat	cccaaaaagag	aaggtataac	gattgggtgt	aaaaaaggct	600
tggtaaatcc	catgataata	gtcctgtccc	ccaaagtgtg	aaagatcgca	ttagggttat	660
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tggattctca	gtttttctaa	agtttgcctc	aaatcggagc	caatagctta	atatcatcaa	960
tagattgaat	atcattgccc	aaacatcaag	ttttctcaaa	accttttagtc	tgtctagtcc	1020
ttccagcttc	tgattttggt	gcgccttaga	ctaagccttg	ttaaggaagc	aagaccataa	1080
gaccctccag	cttacggatt	tggttatcca	aaagataaag	ctccgctagg	acgtgagacg	1140
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agactatcca	ggccctctag	tttacgattt	ggttacttct	tagacgaagc	tttgtaaacg	1260
agggtgagacg	ttccggccct	ccagcttacg	gatttggtta	tccaaaagat	aaagctccgc	1320
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ccgatagtca	agcgttgcta	aggacgtgag	acgttccaga	ccctctagct	tactgattgg	1620
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agtttactga	tttggttacc	aaaagataaa	gctccgctaa	cgaggtgaga	cgttccagac	1860
ccctagctta	ctgatttggt	tatcggagag	agaaagtttt	gttagcgagg	tagactatcc	1920
aggccctcta	gtttactgat	ctggttactt	cttagacgaa	ctttgttaac	gaagtgagac	1980
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gagacgttcc	agaccctcag	cttacggatt	tggttaccgc	atagttcaag	cgttgctaag	2100
gacgtgaacg	ttccagacct	tccagcttac	ggatttggtt	atccaaaaga	taaagcccg	2160
taacgaggtg	agacgttcca	gaccctctag	cttactgatt	tggtttcgga	gagagaaagt	2220
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cctcaaaggt	ataataaccg	aacagaaaag	aaaaagccaa	tagcgggtact	tagctctttt	2640
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gctattccac	cgcgaacag	cataacgaaa	cgactcaatg	atcagcaaca	tgtactccga	2940
ttcgtctata	cgaccaacgc	accggggcag	atcgctccgg	tgcatctcatt	acatgctacc	3000
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acctgcaaac	agataaggca	cgcactcatt	cgtgggtgaa	tcgggtgcgt	gcctctttta	3120
tataagctcg	ggaatggcct	tttgagccgt	ccgaactata	tataaatcag	atacgatctg	3180
tatacaatgg	aaaacgattt	gtatataaaa	cgaaaacgat	ctgtatataa	atcgttttga	3240
tctatatata	gatcgtcttt	caaagagttt	gaaagcatgg	tccaaactga	aaagttcgct	3300
tttctctgct	ttttacttca	ggatctcctt	ccttcaggtg	cttattttga	atgattccaa	3360
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ttctctatcg	accgtcgccc	atagatgctt	catggcgcgc	tcttcttgac	ggatacgaag	3480
aagaggatag	cgagatagac	gggcattccg	acacagaag	taatccaaca	ttgcaaagga	3540

gggtgatacc	gataagctc	ggaatgacgt	tgaggaatag	ttgggatggc	gtaccgtctt	3600
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tccctcagct	tatagtgcag	aagaagagca	tggcataggc	aaaaaccaag	atcgctacgc	3720
cccaccggat	agcgtattga	actcgactcc	cgtggcatac	gcttcgtaca	gggagtgaag	3780
taataggcta	tgtgagccag	ggtgaggaaa	agcgaattga	gctgccatac	tgtactgcmc	3840
cettgcgtag	cagtcgcttc	tgcgtgaaga	tgaataggag	aggagagca	cttcgcaaag	3900
ctaaataaaa	ggatgaatgt	gtgatgatgg	tttgcatact	ttttaagggt	tggttttatt	3960
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gtttacgcct	tgtacgatag	taaccctttc	gtcatcataa	tgttcgttac	actcataatt	4140
atatgttttc	tggttattga	ttccgtgtga	tccgattgcg	gatatngggg	tttggtacat	4200
ttgaatacca	acagttagca	gcatacctgaa	tc			4232

(2) INFORMATION FOR SEQ ID NO:1150

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3467 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature:
- (B) LOCATION 1...3467

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1150

gtccctcatc	gaatgattcg	gtcatctctg	tccgaacctc	ctgaatgttt	tttgaggttg	60
ttcctgctta	ttgcggattc	cccttaatgt	aaaccggctt	ccgatccgac	agtagatgtt	120
gccatcgggc	gcgtcggagg	taccacttcg	tctgttcggg	cttgtcttcc	gtgatagttg	180
gagcagtggt	ctcgggtggc	gtcgtgtctc	cccgatactc	ggctgagggt	ggacagagga	240
ctgtgtggag	caacgggatg	ctgctctttg	gccggagccg	gccggggaga	taccatccgc	300
tcaccacggg	atttgcgtgc	tgtgtcccat	gggtcggagg	cgggcagtca	gtcccttgct	360
aaataaagcc	gcgatattca	tcagcgacaa	ctcaacaaca	gacgcttgcc	attgctctgg	420
cgatactgct	ggtcacaggc	atcagtatct	tgagcgattg	gtataagaaa	gaagtcggggc	480
aacgtgctgc	atatccacat	atcgctgtat	gactacttcg	gactgctcca	acagcggcag	540
gtagaagcgt	cctgagccat	catcaaactc	cggaagaaag	aagccaatcg	ctcacgatca	600
cctgtccgtc	gaatcccttg	gcaagcaatt	cgtccaaacg	atcaatacgg	atcggtaatc	660
cccctgtaaa	aagaaatccg	tcagacgaaa	taataatcgt	agtcgaggat	attcagattc	720
tctatcgtat	tggcaaggta	atattgcctt	ccgaaaaacg	ggcaatgcgg	tcgaagagcg	780
aaaggcatcg	cgcataccctc	catcggcttt	tgtcgtctatt	atagccaaaag	cttggcttcg	840
gcttttatcc	cctcgtctgc	tgctacgtag	cgcaaattgtt	gcctatttcgg	gcccgtggta	900
ttcgtttgaa	gtcgaatatac	tgaccagcgc	ggagaatagt	gggcaggatc	tttgtgcttc	960
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cattgaaggt	tgtcgcgaga	gcatgtgtac	ctcgtcgatg	atgtagatct	tgtattttcg	1080
atctgtggcg	gcacattggc	ctgctctatc	aagagacgaa	tatcatcacc	gaattgttcg	1140
aagcggcatc	cagttcatat	atattcatgg	atcgtctctca	tcgaaagcct	tgcacgactc	1200
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aggcacaacc	ttacactttct	ctcttatctg	agtaaagaaa	tcattgccct	tgtcatcacc	1620
agaataaagg	ccgggaagtc	ctccacttcg	atcttccaaa	tagcctcata	cccagctcgg	1680
gatattccag	acactccact	ttcttaatgc	tgtccgagcc	agaatagctg	ctgggcctcc	1740
aacactgcgc	aggtagaatc	cgccactctc	ttacacgcac	ccgtcacttg	ctgagagcgg	1800
ttgccttttg	ctacatcacc	atactgcctc	catgcgattg	gaagagatcc	acatagctat	1860

cctacggccc	gctgtcgtag	gcccgaacga	accgctcggc	atcccccttcg	ggctcttgccc	1920
ggaccggcgt	agtagatggg	atgattcttg	atatagtcgg	caaaccctcg	ccacgggtcga	1980
tacgttcttt	tagtttgccg	tgagcaatac	acgccccacg	ataatcgtag	cactgagaga	2040
caaacgggtg	gaaacaggta	ctgcgacagc	tctctcagaa	tctcaggcat	cggacgattc	2100
agatcgactt	gaccaccgta	ccctctgtac	cctcacgcat	ggattcaggg	atgaggggtgt	2160
gggattggtc	tccatctttt	cgatccagat	accgtcttta	ttgatttttg	cttgatattg	2220
cggctctgcc	aacaactgac	gcccatacct	acggacagct	tgctccatgt	cggggcaggc	2280
ggatgatgcg	cacgtcgtgt	gcgagtattt	gcctccaaac	tgagcaccca	gtcccagatg	2340
ataggcagct	tcaagacttc	tttttccagt	tcgacatcgc	ggaaggcacg	cccgccttcg	2400
tgcccgaagt	aggcagattg	tcgtagtact	tgcccgaagc	cagcttgacg	tcttgagggt	2460
cgtttcggcc	gaagttccgc	ctatcacgaa	tgcaatgtgt	acggaggaca	ggcagctgta	2520
ccgagagAAC	tcatcttatt	cacgaggagt	tcaccagcgt	cttgggggtg	agcagtgcct	2580
tcgtttcctg	atagagaacg	tcttattggc	cgacctctct	cctttggcta	tcagagaaaa	2640
gtcgtatcca	tgccgtccac	ggccatcagg	tcgatctgtg	cgggcagggt	gcacctgtat	2700
tcacctcctt	atacatatcc	aaaggagcat	tctgcgaata	gcgcgggtct	cctgcgtata	2760
ggtatcatag	acaccatgcg	agagctgctc	ttctcatgac	cgcccgctca	gacctgctgt	2820
cccttcttac	cgaggatgat	agcgtgcccg	tatcttgcca	gaaagggagc	tgtcccttgg	2880
ctgaaacctc	ccattgcgca	ggaaagtcaa	agccacgaat	ttgtcgtttt	cgctggcttc	2940
ggatcggaca	gaatccgagc	cacttgctgc	tgatgctccg	gtcgcaaata	aaagcgatgt	3000
catgaaaagc	cgctccgcga	agtaatcgca	gagcttccgc	tccactttca	ggacatcatg	3060
atcgccaaac	ttgtccacgg	acacatatcc	ttcgtcagca	aataatactc	tgtcgtatca	3120
tcccccatag	ggaaagcttc	tgatacttaa	attctggagt	tgccatagta	attgtaacta	3180
ttgttttaaa	gtgataatcg	gttctttttt	cggtctccca	tcgaggacat	ttcctatcga	3240
tgcatttgga	gtatttccct	tgccggaggca	tttgctattt	cccagagaaa	ggcagacaga	3300
gacagtcatg	ataatgtcgt	cgaaggaatt	cgagtgatgc	gattgcagtt	gtaccgtcct	3360
acagtcgcat	cgcatatcgg	gagatcatga	ccgcacagaa	agcctctccc	acaacgggga	3420
cagactttcc	gcggtagttt	cccgaagaat	tcaggctcat	atctcag		3467

(2) INFORMATION FOR SEQ ID NO:1151

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 420 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...420

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1151

gctacagaca	ccgtgtcagc	aagctgatgt	ttctcggcag	cacctgtatt	accgcgcgca	60
tgcccgtcag	ccgatgcgtg	aggaagaatt	gctgacagtc	cgctggaata	taccaacgag	120
ccatacgcca	tagccaaaat	cgcaggatga	agatgtgcga	gagcttcaac	ctccaatacg	180
gcaccaatta	tatagcgtga	tgccgaccaa	cctgtacggg	cccaacgaca	atttcgattt	240
ggagcaagcc	atgtgcttcc	ggccatgatc	aggaagattt	acttggccga	tcgctgcttc	300
gccacgatga	ggaaagccgt	tccgcacgga	tttgtccata	cgtctgtcga	aagcatcgac	360
ngatcttctt	ctttcaatga	tattctctca	ttctgaagcg	gtacngcatc	accgccgaaa	

(2) INFORMATION FOR SEQ ID NO:1152

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4334 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...4334

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1152

aatcgtttta	tgcttgagca	cataacctgt	gacgaaatcg	aaaacgtcat	attgatggcc	60
atataataaa	gtaatgtcgc	agctgtatct	tgtttgactc	gatgtcaggc	aggattcctc	120
ctgcatcttc	tacacgtctt	ccggcagagt	gtaaaagatt	ttgtgcagac	tgtcagggaat	180
ggccgttgcc	ataccttcgc	attggtgcgg	ctgtagtcca	aacgctgaat	acaacgtccg	240
cttgatgta	gtacttggcc	gtagtcaatt	tgatcacgcc	gttgatgggt	agctacgagt	300
cgtttgtaca	agccctttgc	catagctctt	ttgtcccatc	agtcagccct	gtccatatcc	360
tgcatgtctc	cgggtacaat	ctccgaggaa	gagccgattg	tccatcgatc	aggactacta	420
tcgggagttt	cgtgtcgatc	gttcagtcga	tggtcgaaat	acggacgccg	actctgcaat	480
gcgacctttg	tcgttaccac	ctctttgccc	ttagggacga	acagattgac	tatctcgatg	540
cagcctgcat	cagtccgcca	ccattgcctc	ttaaatccaa	aatgagactt	tcgctccttg	600
tttgtcacga	agatccaaca	aggccgtgcg	cacctctctg	cacttttgtc	cgtaaagttg	660
ttcaagcgga	tatatcctat	cgagcctcga	gcattccgct	gtaagtgcgc	gaattcataa	720
tcactttttg	acgttcacgg	aaaaagtacg	aggtttgggt	tcgccatagc	gcattactgt	780
caccttgcaa	cagtaccggc	tatccctttc	agtgccttgc	ttactttcgg	tgtgtggatt	840
tcgggaagtc	tttcccatcg	atagtcagga	tgcggtcgcc	tgtatcaatc	ctgcttcgtc	900
tcggggcata	ccttccatag	gtctctggat	atcacagcac	tatccgggcg	ctgcgatatg	960
atagctccga	ctccggcata	tctcccgtag	tcatacaattt	cagttcatcc	atttcctcgt	1020
aaggaatggt	tcggtatagg	ggtcaagccc	gcccacatc	gcattctatac	cacgccgatc	1080
atatgtttga	tacttatggt	atcgacgaaa	tacagcctga	cgttaccata	atattgctaa	1140
gcacatccat	cgactgtaca	tactcattgc	ggctccatct	tcttcggtga	gtttgttcgt	1200
cttggaacttc	tgtgcacagg	cagtctaaaa	ctaccggtga	taaagatcac	cagcagagat	1260
aaaaacagat	tggttttttc	atgcgcgcta	aggtacaaaa	ctttcgtagt	actatttttg	1320
atcgggcaat	cgcatcttcag	ccactaacgt	gcattctaaag	ctcatgattg	ctcaccgat	1380
tatcaaaaca	gtgcgaattc	atatgtcaga	gattcaaatc	aagaggaaaag	agactaaaaa	1440
tttttaaacg	cgatcgccct	gacagggttc	cccggggccg	acgcattaaa	ttggttttgc	1500
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agccggatga	ttattggagc	cggaggtggt	atcggtcgt	atggacgcaa	tgtgaataga	1620
cggtacagcg	tggcgcacaa	ggtgcataca	cggggagcaa	ggcgatgttg	gagaagcaca	1680
agtgctggtg	ccggtcatgt	cgtttggtgt	ctcaaggggc	actcattaaa	gagacgtaga	1740
tttccacaag	tagatttttc	tgaaccacta	gtagattttt	ctgaaactaa	tatcagattc	1800
gacgtactga	aaattaagtc	ttatcaaagc	acatttggtg	cggctttgac	cgctctactt	1860
ttattccacg	agcgattaac	gcaactcttc	ttcgatcaca	cggaactcgg	tcgacggttc	1920
agttggtcgc	agactgactg	ctgctcctcg	gtcaaagggtg	tacgaattcc	tcggtgagca	1980
catcgccctc	cttcaggaaa	tcgtgccgtc	ggcaattttg	gctgtcaccg	tcttggggac	2040
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tccaccagga	tttggctctg	cggtcagata	gtccgaggtt	gtaagcatcg	gggccttcct	2160
gtcggcatgc	gaacccaatt	cgatccgaat	atccggattg	tccgtaggat	acgaatcagt	2220
tcgtccaagc	tcttcatgct	ttcggggcga	agagagcttt	atcgaaatca	tagaaaaatat	2280
tttgcaagcc	ctcggctttc	tcagcgatgc	aaggaaaaag	tccacatagt	aggtctcact	2340
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acattacata	gcgagtatcg	ccctgcacgc	tcattcttata	ggagccatcg	cacgagtagt	2460
cacgaatccc	tgctctacgg	ggccgcggtc	gcctacgatc	tgacagtggc	tccggctatg	2520
ggattttctt	ctctgtccat	cacataactt	gaatctcggt	gtagatagcc	ggcagttcga	2580
aatggaaagag	gtcgggcatac	cgcggtgcac	gcctcgggtt	gaacaaaata	cacctttgac	2640
tccgtttccg	gcaaagcttc	ttctttgttt	ttgcctttag	gctccacagc	caagcgaaat	2700
catcggcaga	ggaattgacc	ggttggtcca	tattgactac	atgcattggc	cggtagagtc	2760
cagcgtggct	ttgaaaatat	ccagtcctcc	cagccggcgt	gtccgtccga	agcgaagaaa	2820
agggtactat	ccccatctat	gagggaaaca	tttcgtcccc	cggcgtattg	atatcaggcc	2880
ccaaattctc	cgtgaacctat	aagaacgate	cgacaccttg	acacgataaa	tatccttgcc	2940
ccatagctac	cgcctatatt	gctgacgaaa	tacaggtaat	tgccggatgc	gacatagagg	3000
gatgagcagc	catacggagc	gaatcgcgca	taatgtcccg	agcgaaccgt	tgctccaacc	3060

gccttctccg	ctccgagcgg	cggaataatc	tgtaccgtac	ggctcgtaatc	ggctcccttgc	3120
tgccgccaacg	tataattatg	gtactaccat	cgggcgtgat	cggtggcacg	ccttcatccc	3180
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ctttgcttct	gctcgatgtg	aaatagagag	ccaagcatcg	ggtgcatagg	ccgggccgaa	3360
gtcgccccgt	gccgaattcc	atcggcagct	cgccgtatcc	ggtaacgtgt	aggatattcc	3420
ttttgctggc	ggcaaagaga	cacccctcca	aaccgatagc	tgcaaaataa	cttttcggaa	3480
agcttccaga	tatccacgga	agagtacctc	ggcttcctta	tagttacccc	ttgctgataa	3540
gtctgtgcca	aacggagcag	taccacagaa	tccggatccc	gtagcgtctg	gcattcagat	3600
agccacgcaa	agctttggct	tgtctgcggc	ggcacgatag	ttttcacccg	atcggaagc	3660
cgtataagct	ttcattccac	ctgctttcgt	cgggtacgcc	tgtataatgt	attgtacata	3720
tcggagcctt	ggtatactct	tggcgatcat	gtgccttctc	cgcattcttc	aactcacgct	3780
cttgaggca	gcaaaagcaa	ggcataccaa	caggataaga	aaggataatg	gattttatga	3840
tgtccgctgt	acatattaag	aagaaaagg	aaggctatgg	gatatgaatc	agtttgtgca	3900
tctgtatgct	cagacgcaa	caggaaaagc	cttgacgaac	tcgacgcagc	gagtgatggc	3960
agaaggatcg	gctccatggc	atcgctctcc	cggaagatgg	ggctgacaag	ataatgctag	4020
cagtgggcaa	ttcatcgatc	ggtggaggta	gaggagtatc	ggatcctacg	ggaagcgaaa	4080
ctccccact	ccatcaggga	agttttcttt	cagtttccta	tggctccggg	cttgggacta	4140
caggaaatat	agtctatacc	tttggtacgg	ggcgagttcc	gttggtctct	atagcttgaa	4200
agtaaccaag	cctggaaaat	aagccgtagc	ttcttctgta	agttgcagag	tcggttctcc	4260
accgtccaaa	tgagaaagcg	tgtgggataa	tgttcgatac	tgccgggcaat	ctctccaatg	4320
acattttttt	ccgg					4334

(2) INFORMATION FOR SEQ ID NO:1153

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 850 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...850

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1153

tcgatgacga	actcgtcgtg	gacgatatgc	cggctgacag	tctctccgcg	acatggccga	60
atcggacagc	tcggccggcg	tcttcgcccc	tgctgccctc	atcatcccgt	cctcctccgt	120
gccaaactcg	acgagcaggc	tgccaccacc	gtttgcgagc	cgcgcgaggt	gcattcctgc	180
cgagtgtgct	ggtatcgag	gatggaacac	gggattctca	cgttttttga	atggatcgga	240
ctatagccct	tcagcgagca	gtttcggaac	cgtcgggggg	aatacgtcag	tctgatctga	300
gtatcccat	cttttcggga	ttcagccttg	tgagccatct	gcgcaggcgc	gtgccgaacg	360
cagggcggca	atcgctccgac	ggggcgaagc	gggcgcaggc	tctacagcga	gatcgcccaa	420
gccatggccg	accgggatgc	cctctggcct	cctaccgcca	ggcgaaggag	cataccgacg	480
ccatgcaaac	gcttacgaag	ccgtcttgca	gcgttatgag	gaggggctga	atacggccac	540
gacctgacca	ctcaggccaa	tcggctcctg	gatgcccgtg	tgacgcgatg	agagcggcca	600
tgacctaccg	gctcaaatgc	aaactcatag	cctattaggc	tgcttttcgg	actaaagctt	660
ttcttttctc	ccgttcgtat	caaactctacc	atcatggata	gaaaaataga	aaaaaagaag	720
acgctcatcc	cccgtaatat	tatccctatg	cagggggagc	aatagtaata	ctgccttg	780
cggctgggccc	gtattcggca	atcacagcac	caagttcaga	gccgaacgcg	cttggaattca	840
gcattcgcaca						850

(2) INFORMATION FOR SEQ ID NO:1154

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1461 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1461

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1154

tcgacttcga	gctcgggtacc	ctgcaaggag	catttttcgcc	taccatatag	gaatgatgtg	60
actcgatgat	ggcattttcta	tgcctttttcc	cttgatagat	cacgcaaaag	cgtagcagaa	120
tcctccagcc	gcttttctctc	catcacaact	caggtagccg	acggaatatc	agttcagtc	180
atcctatcgt	agcaggggta	aagctgtgga	gaatataagc	gaacgacttc	gattgatcag	240
gtattacgta	cgacattgtc	acagactata	taggcaccca	tagaggccaa	tgctttccga	300
atgtgccgac	cagatagtc	attttcccaa	tggtagcagt	ctctccgcca	agcctaaacc	360
ggtttttccc	cttactccta	tggcatgagc	ttgtccacat	atagctcgac	ggtaggggat	420
agctctttga	gatcaaccaa	gatgggagat	cggccacatc	gccgtccata	ctatatatac	480
tctctactgc	atgatgatcc	ggctgtatag	atctttattc	ttgtggagga	tccgctccaa	540
tgctccggat	cattgtgccg	aaatcgctcg	aaaggcggtc	cacagagtgg	atgccatcta	600
tgatgctggc	atgaactaat	ctgtctggca	cgatcaagtc	cgttcatcca	caagagccgg	660
tagaacgcct	gtgttgagtg	gtaaccctgt	tgaatatcag	agaagattcg	cgcccgaaac	720
gttccgctat	catccctcca	atctgtcata	tgccgtacta	ttgcccgtga	gcagacggga	780
ggaaagctgc	ccggaagtcg	atcctctcca	gagatagagg	tataaaactc	atcatcagat	840
cttcccagac	agtcagtc	agataatcgt	tcgaggagag	gtgagcattc	gtctttcctc	900
ctcgatgatg	tagctgccat	cgtgtatcag	atcctaagct	gcctgagact	cccgttttct	960
tccagctctt	gcagctctgc	ctatatattt	cgttcattca	ggttttttga	ttgtctgttc	1020
cgattttcta	gtattgtatt	cgagcgatt	atgctgtcag	gtgataatga	gatacaaaat	1080
aaacaaacgg	gaaagacccg	atttatagat	ttaacgtcag	ttcggcgaag	aaaacgccaa	1140
tgtattcggt	ccaagattag	cggttaacgc	actaattttt	ggaagttata	ggttgttctg	1200
ttcaggcaat	tgtatagggg	gcaatctgct	tctgcctgga	tcgaaccaac	attgaaattc	1260
ggattgcttt	tgacgaatgt	tgcagtccgt	atagggagat	gggctatacc	acagggcaga	1320
tggggtagtc	cgtagaggat	gacgagctat	cccgtacggc	tcttcgagct	acctgtagag	1380
ctcggcgagg	tacgccctac	agcgtagcga	gccgagccgt	aagttccgct	ccgtgagccg	1440
tagaggtggc	cgagctgagc	c				1461

(2) INFORMATION FOR SEQ ID NO:1155

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2913 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
 (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2913
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1155

cgctgccag	cattctatct	acccaatctt	cgaacaggaa	tcccaaaata	cggccggaac	60
cagtgcctatc	aatagcttcc	aatagagatc	gaagcgacca	taaattcttt	ccctttgcct	120
tgccctaaag	ctcgtggagc	cacgggaaac	aaaagaaacg	tttccggtac	agcaccagaa	180
cggataggat	ggcaccaact	gtatcatcac	ggtgaaggct	ctgacaaaag	aagtgtcttc	240
cacccccatta	tgccttcggc	gataatcatg	tgctccggtg	aagaaaccgg	aagaactcgg	300
tcagcccttc	gactatggct	aaaacgatgg	cttgtagaat	ggtatatatt	catgcaggaa	360
gagagggtaca	tcctttctcg	atcaggcata	gattactccc	ccacaacgtg	cggtttgcg	420
tctgatcggc	agaaggaccc	tgccggagag	ttacttgcca	ttgtcttttt	tatccggcga	480
taccatgatg	catataccat	cagtacgaag	ccggccatgc	tcacccacgg	tgctatctga	540
tgcgtttggc	actgaaaata	tcoggattga	agcttacttg	gtcggctgtc	ctccccctga	600
catcaatatg	aagcccagaa	tgatgaggat	agcggacccc	ccatcaagat	aaagttcttt	660
ttcccgaaaa	gcatagtatg	ctgtttattg	tcttagttgg	tttgtcaata	ttccttgcc	720
tatacgaggt	gcatttgctt	ccatccatgc	ggatataatt	gttcggttgc	gcacgtgccg	780
aaaagcagag	atcagtatac	ctacaagtaa	catgccttcg	gctatgggtc	ggagttttcc	840
atcggttaaga	aggggcgtaa	actcctgttg	aatgcgtatt	cacagttgca	tagagggcta	900
taccgaggag	tagtatggcg	agcaaagctg	cacgagtcca	ttgagcatac	tgtagcgaac	960
gaaaggctta	cggataaagc	aggcgtggca	cccaccagcg	tcattggtacg	gatgctgaat	1020
cgcttcgaaa	gatcaacaaa	cgggtgggtg	tggtgatctg	tatgtagctg	atcagaagag	1080
caaggctgat	agagcgagca	gaacgagacc	gatacggcgt	gtattgcgtg	tactatgtcg	1140
aacatatccg	ccctgtattc	cagattgtcc	actccatcca	tgtgcggatg	gcagagtcta	1200
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tcggggcttg	atcggcagag	atatagctga	catctttgac	gaaggggtgtg	gcgctatctg	1380
tcgctgtagc	tcttgtgcct	gcgtttcatc	catgtcggag	gtaagagcag	attgaaggag	1440
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ccagaaggaa	gaggacaacg	caatactcat	aatggccaaa	aaccttgaat	ggaaaaaggc	1560
agaagaccct	tcttgttctt	ttgtgacatt	cttattgcta	tatctcagag	aaagaatgga	1620
gactgacacc	ctcttcgggc	cggcgggtgg	tttgatcatc	gacggaccgt	ttcaggggat	1680
cgggtggcctg	tcattgtttc	ccaaaaggcc	aaaaccccca	atttctccgc	aaaaatagta	1740
tataatatgg	tatgcgacta	tatttctcga	gcgagaaaaa	tcctgtaggg	tcaatcccta	1800
agggtagtat	atataaaaaa	ggagtagggg	ggctatgccg	agaggccggg	caaaagctct	1860
ccgatggttt	ctttttatct	tgtctccatt	tgctggttcg	gttccgaaag	cgataaaaag	1920
acatgtttta	ctgtttcatc	tcatttgccg	gatcgtattt	acgaaccgta	attctcgaaa	1980
ttttggtttg	tgtttttgaa	aaaactggac	cgggaattttt	tcgttttggt	ttgggaattt	2040
tttacttccc	gaaccaaattg	aaaattttct	cgaaccacgt	ttttcggagc	gtacaatagg	2100
aaaatttgga	gtgacgtgta	ctgaaaagag	ttgacactcg	gagagtgtta	atttcggatt	2160
aaaattacag	agatttctct	aaagtccatt	atgggtttac	acacctactc	tttaagacga	2220
ctttcgggtg	acagccgcta	aatccgcctt	ctggggggag	tcattttgcg	atagagcttg	2280
ggcgagattc	ggggggggat	tctttggggg	atctacaaag	gggcattact	cgttcttttc	2340
tgtagcaata	tgcgaaaatc	tacatgatat	attgaaatag	aggggaatcc	atgcttttaa	2400
aagggagtc	tcacccggtc	actactacac	ttttgagaac	tggtctgcag	tatagcagta	2460
attgtgtcgg	aaaatgaccg	aatgatgact	gtcaaaaaca	gagataagcg	gtcaaagaac	2520
aagggggata	aaaaagaaat	cgctgtaaac	cttgatttta	cagcgattca	tcttaaatat	2580
gaaggtctaa	ttgacatcta	tgtgacatcg	ctttgagacc	tattagcggg	atggacggga	2640
aaagaacgtc	cattgtatcc	tttttatttt	cagtgtctta	gaaggaaagtc	tttgctgtgt	2700
aacccaaatg	aaaccaaaga	cagattatct	tcagacgatg	ctcaatggcg	tttttttgac	2760
gtccttagat	aaaggagcaa	aggaaattca	tttgcttttc	aaactccttt	cagactaact	2820
gaattgttcc	agcgggtcgt	gcggatatga	atcaatccgt	atcaacagtc	ttatttccaa	2880
ctatttaaatg	atggtgtttg	tcgtattgca	acc			2913

(2) INFORMATION FOR SEQ ID NO:1156

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3080 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...3080

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1156

gcaggcgcat	tcatacacaga	cctgaagatc	ggctactggc	tcggcaccag	ccgaagagtc	60
aggagaagt	gaagttcctc	ggcgttctgg	tagcttcgtc	accgtagccg	gtgtgatgat	120
gatacctgaac	aagacctatg	gctttacggc	gatacaggctc	tggtagctcc	gcaggccaat	180
gcgatggcag	ccgtgacaag	ccgctgatgg	aaggcggtaa	tacgccttgg	attctctatg	240
gcgtagagct	atactggctc	tgatcctgac	gagtataagg	gtgcccgcac	tgcccttgca	300
ctgggtatgt	ttatcccgtt	acaactaaat	acacctctcc	tcacggcgga	ctcgtcagct	360
ggttcgtcag	cacccgctcg	aaggacgctt	cttcaataaa	ttccgcaagg	aacgcggtac	420
gctcatcgct	tccggattca	tgccggagga	gctttgatgg	gtgtggtaag	tgcgatcctc	480
aaatacatgg	gttcgatgct	tttgcccaag	aatggcacgc	catggcaggc	gccgaatggt	540
ggccatcggc	atgtatgcgc	tcatacttct	ctacttcac	gtcgacagat	cagaggcaag	600
aaacatgaag	cataacaacg	aaacaaagaa	tatggaatga	aagagagatt	tctccgatat	660
gtaggcttcg	atacgcaaag	cgacgatcct	ctaccacttt	cccctcgacg	gacaagcaat	720
tggtgctgct	gcgtcttttg	ccaaagagat	gaaggacctc	ggcctgtgcg	aggctgaaat	780
ggacagcacg	gctatgtcat	gggcagcatc	cctgcctctc	ccggttgtga	gcagcgcccg	840
tgatcggtat	cattgcgcac	gtggatacgg	cccccgacat	gacggcaagg	acgtgaagcc	900
gcaaatcatc	aaaaactata	atggcgcgga	tttcgtctga	acgaggaact	gactatgcgt	960
gtagcggatt	tccccgagtt	gcgttcttca	aagggcatac	gctgatcact	acggacggta	1020
ccactctgcc	ggtgcccgat	acaaagccgg	tgtggccgaa	atcatgacgg	ctgccgagat	1080
ctgctcgcac	atcccgaagt	caagcatggc	aagattcgcc	tcggattact	cccagcaggg	1140
aaatcggtcg	gggagtggat	cacttcgatg	tcgagcggtc	ggtgccaagt	tcgcttacac	1200
gatggacggc	agtaggaag	gagagtggag	tatgagaact	tcaatgcggc	ttcggccaaa	1260
ctgaccgtaa	acggcgcaat	atccaccgcc	gctatgccaa	gggaaagatg	gtcaattcgc	1320
tgcggtagt	tgcgatctgc	atgctcttct	gcccggagct	atgcggccgg	agctactgcc	1380
ggctacgaag	gatttttcca	ccttatcggc	atcaacggtt	cgtagagaaa	gcacggtcat	1440
cttatatcat	ccgcgatcac	gaccgcaaac	ctttgaagag	aagaaagagc	tgatcaaagc	1500
tgccgtagac	tacatcaacg	caagtacggc	tcggacatcg	tgtagctcga	actcaaagat	1560
cagtattaaa	tatgcgagag	atggtagagc	ctcatcccga	gattatcgaa	aaagccatgc	1620
tgccatgaag	cttgccggca	taacggccaa	ggtgcgcgct	attcgcgcg	tacggacggg	1680
gccagactct	cttatatggg	actcccgtgc	ccgaaatatt	tgccggtggg	atgaacttcc	1740
acggcaagtt	cgaatactgt	tcgccgactc	catgcggcgg	gctgtggaca	cgatctgcca	1800
tttggtctgt	cttgggctga	atagtcatcg	cacgaatgac	gatccgttct	tccctttctt	1860
acatcattaa	tagagaatgg	tttggggcct	cggagggaaa	gcctgcacaa	tgggttttcc	1920
ctccggcatt	tccctccatcc	gattcatattg	tatgaaacca	actttttccga	acgttacgct	1980
cgccagacgg	ctcttcccga	agtgggagcg	atggacagca	gcgattagat	ggttcgcgatg	2040
tccttgatcat	aggagccgag	gccttggttg	ccctgtcctg	caatatctct	gtgctgcagg	2100
cgtggggata	tcagcggttg	cgatgatgat	cgcgctcgaca	tcagcaatct	ccaacgcaag	2160
tgctcttttc	cgaagccgat	ttgggacagc	ccaaagccat	tgccgagtag	ctcgtttgca	2220
ggcgatgaat	agcgattgcc	gtccggaagc	tttcccga	gatttacgga	gctgaatgcc	2280
gagatggttg	ccggcgagtg	caacttatta	tcgatgcttc	ggacaatgct	gagacgcgct	2340
atattgataga	tctgtctctc	ttgctctcgg	aattcccttg	atatatggca	gtattgccc	2400
aggcgcgggc	aattcactgt	cttcggttat	ggccatccgg	tgcgttattc	gatcttttcc	2460
cctccggcga	agcggtctcc	gaggaagtgc	ccccagccgt	atcggagcct	tgcccgggtgc	2520
cgttggatcc	tatgatggca	gccgaagcat	caaaatcctc	ttgggaagac	ccgccgaaga	2580
aactctcagt	ggccgtccct	cctcatggat	ctgttgcatg	gcgagtcgcg	cactatccgc	2640
tattagaatc	ctactaatct	gcttaatcaa	aataattccg	attccccctc	cccaaaacca	2700
tgctcttcaa	tctgatcgtc	gatcaaggcc	aattctgcct	gtaagttgct	ttcgtccgaa	2760
ataatagtat	agagagcatt	tcctttctgc	cggaaaagcc	ggacaggcac	tcagccatct	2820
cgctcgctcct	caccgtttcg	acaggctatc	tactcatctg	tggggcttcc	cgacgaagag	2880
gctgaagcta	tgtgagaagt	tgtgcagctg	cttcccttgat	gatggggact	gagacccccg	2940
accccttcgc	ctgcaatatg	atcgccgcac	tttgggtgcc	gaccgactgc	tgcggtggtc	3000
ggagcgcata	gtctctatcc	gaataaccgaa	ttgctggtat	cgacgccggg	actgccatca	3060
cttatgaacg	agtatccggg					3080

(2) INFORMATION FOR SEQ ID NO:1157

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 840 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...840
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1157

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gcacatggta tcgttggtcca tattgtccag catgattatg tctgcaccaa gcgtactgct      60
tcttcgacct cagccaaatt agacgtttcc acttcaggtt gatcgagaga gggagtgtct      120
ttctcgccgc ttcataggtcc tgggggtaccc tccggctacc ttgatgtgat tgtccttgag      180
cataatcata tcataggtcc catgcatga ttatgtccac cgccatggcg aacggccatc      240
ttgtcgttat tcgcataccg ggtgcccgtct tacgggtatc caaaagcctt acagcgtacc      300
tttcaaaaggc tcggcatagc gagcgggtcat agtggcaata ccatcattct ttgcaaaaaa      360
ttaagtgccca atcggttcggc ttgcaacaaa gccggtaact gccttcacaca cgcaggatta      420
cttgaccgcg ttttacggag cgccatccga tacataggga gtccaagtca cggcttcgaa      480
tcgttcgaag cacggcgagc tacctccatg ccggatatga tgccatcagc cttcattaca      540
ttgtggctgc agtccttcc gattggggga taatggcatt ggaagaaaagt ctccatcggc      600
aatgtcctct gcaattgccg gatcgatcaa tttttccaaa gcatttcttc atgagtcata      660
acttaaaagt gatgagggtt ttacggtgtt tatttggtat ttcccgctcc gccggcaagg      720
gtgtaagagg agtgctgcga taggcttngc tcgtatcggg atagtcttcc cgatnatgcc      780
ctccctactt tctcggcgag ctatcgcccc ccgaacgatg agctgaccca ctgcagcagc
840

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(2) INFORMATION FOR SEQ ID NO:1158

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1215 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...1215

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1158

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ggagtagatc agatcccttcg cgccatcgta gagcaagtac cggccccctgc ggagaccccg      60
atgccccgct gcaatgcctc attttcgatt cggctcttcat ccgttccgtg gtatcatcgc      120
ctatttttaag gtggtgaatg gcagtatcgc aaaggagacc atgtcaagtt tattgccacc      180
gagaaagaat acgatgcgat gaagtaggag tactcaggct cgatatggag ccgcgctcgg      240
aggtcagacc ggcgatgtag gctacatcat cagcgggtatc aaancaagcc gcgagtcaag      300
gtcggcgata cgatcaccca cgtagccaag ccggccaaag aggtatagct ggattcgaag      360
aggtaaaacc catggtcttc gccggtgtat atcgatcgaa gcagaagact tcgagaactt      420
gcgtgcttcc ttggagaaac tcaactcaac gatgcttcgc tgacgtttca gcccgaaagt      480
tcggtggctc cggattcgga tttcgttgcg gatttctcgg tttgctccac atggagatct      540
gcaggagcga ttggatcggg agttcaatat gaatgtgatc acgacgggtc caacgtttct      600
tataagggtg acgacaagaa aggtggctgc aaagagggtc caatccatcg ggactgctcg      660
aaccacgct tatagatcat atagaaaacc cttcatcaga gcttctgtca tcaccaatac      720

```

ggcctatatac	ggcccat	gacactttgt	ttggggcaaaa	gaggggtggt	ggtgaagcaa	780
gaattatatac	gggcgatcgt	gtagagatct	tctacgatct	tccattgggc	gaatcgteat	840
cgactttctac	gacaaaactaa	agagtatctc	caaaggatat	gctcattcga	ctatcacctg	900
cacgacttta	gagagagcaa	gctggtaaag	ccgatattct	gctcaatggc	gaaccgctcg	960
atgccctgtc	tacactcaca	acgtgggcaa	cagtgtcaca	ttcggccgac	gcatgtgcga	1020
aaagctcaag	aactcatccc	gcgtcagcaa	ttcgaaatag	ccatccaagc	agctatcgag	1080
ccaagatcat	cgctcgcgaa	acgatcaagc	ctgtccgtaa	ggatgtgcgg	ccaagtgcga	1140
tgggtggcgat	atctcccgtg	agcgtaaagc	gctcgaaagc	agaaagaagc	aaagaaacgc	1200
atgaagcaga	taggc					1215

(2) INFORMATION FOR SEQ ID NO:1159

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2802 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2802

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1159

accctgccta	aatccccgga	aaacggcgcg	agaatttttt	cgctttggcc	gagaattttt	60
tgcttcccga	acccaaagca	aaaaaatccc	gcgccacgct	tcaggagcaa	caaatgcaaa	120
aattttggca	cgtaaacagg	cccaacgaga	tgatgcccg	gcttttttaa	tagcagtttg	180
tatagggcat	tgtattgcca	taagcatagc	tcctgagtea	ttcccataaa	gacgggcagt	240
taaaaccgat	cacctcccca	tatccactca	ttatttgtac	gtaaatgtct	ttttcagact	300
ttaaatactt	atattttatcc	cgaaaaatta	cccaagagag	attggtcgat	tgctcgatccg	360
tcttaagtca	tacaatccaa	taatcattat	tgaatgaaaa	aaacaacccat	tattttctttg	420
attgtcttcg	gtgctttctt	tcagccgtgg	gccaaacca	ggacaattct	tcttacaac	480
ctttttcgaa	gaagatatgg	ccggaggagt	ttactctctc	ccgactcaaa	atcgtgcgcg	540
aaggacaatg	ccgagtggct	tcttacagcg	accgtctcca	caaaccagct	gcagatactc	600
actttatctt	cgatgagaac	aaccgctata	tcgctcggac	ataaaagcca	atggggtaag	660
aaaatccacg	gactccattt	actacgtgcc	aacgggcgaa	tatcgcatgt	ggatctttat	720
atctcgttca	gtggcgagag	cctgcactcg	acacccgatt	caagtaacac	tatgatgacg	780
agggagagat	accgtgaggg	aagtattcat	gctggtaatt	gatccgaata	cactatctca	840
cgcttggaat	atcattatga	tgacacgggc	agactgacct	acggatttct	tttgcttttg	900
gggcagaatc	ccaaaagaat	acgtatcact	aaatgaaaaa	ggctgtgttg	tcagcttaag	960
gctgagcaat	gcaatgggga	aacctattca	gacaccggca	aaacggaata	cagctatgac	1020
gatgcagata	tatggtgaag	gccgagtact	tcgtcgtcca	gcaaggaaaag	gcatggcagt	1080
actcaaaaga	gaggaataca	cctatgagga	caatatctgc	atacaatttt	ggctattaac	1140
ggtaccgaca	caaagggtga	caagcgagac	atcgaggcga	taagtccatc	tcgcgaaaatg	1200
tcattgacat	tccgtcaatg	ccggacagac	ctggccta	atgtacggat	tcaacgcaaa	1260
gcgactgaaa	gagattatct	ctcctacgaa	ggagatgtgg	ctactcctat	attcgactat	1320
atcatacgtg	caaggctctt	acctcaatgg	caacaccttc	gacagaagct	cagtagcagt	1380
ctatctcaat	ccgtcaacgg	accggttagt	gattctggcc	acggcatcac	acatctgagc	1440
atgtacgact	tgcagggtaa	gcttatccgt	attgtgcctt	gagcggcgat	aagggtgaaa	1500
tgggtgtcgg	atctttgaca	aagggaacata	cctgcttaaa	gtgaatacgg	atcagggagc	1560
ctttgtgaaa	aagtcgtgat	tcgatgatgt	agttcggatc	gaatttcgaa	gaaaggactg	1620
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tcgctccccg	gcatggcaag	gagtttttgc	cgatatggga	gggagagcag	ttcatgtagc	1740
gtttgaagg	gcgagagaag	taagcggatc	cgaaaagcct	gcctcaatgc	taatgtcgga	1800
gatgtttttg	ctccatcggc	aaggagcttg	caggccaatt	ttatcttgat	ctgctgtatg	1860
taccgatgg	ggagcaacct	acgacactcg	tgagctttct	gttgagttgg	gtggactcat	1920
gcacattttt	tcggccaagt	cttgagcggg	aaaatccgga	tttgtttgat	tccaccggac	1980
actgcactct	tggcagcaag	gagaaactga	tactgctgtc	atctatcgg	tgaggctcct	2040

ccttcgggctt	ccgatccaca	tgagtttttg	catatagaac	ttcttgagca	actcacggtc	2100
tttcagagct	gctcgatccg	catcaaaagc	tcttcgggag	agaatggctt	gcatagtaag	2160
agaactacacc	gcttttgatt	ccttccaatc	tgctctgttc	ggtagcttgg	ccgtcaaagc	2220
gacaatggga	atgtgacaga	gcagaggcga	ttgtctatcc	ggattgtcat	ttctatccca	2280
tccattatcg	gcatacataat	atcgtaatga	taatgtcggg	aatatgctcg	gtagcgaggg	2340
ctataccctc	tttcggtttg	cggcggtatg	cacattgtag	cgatcgcaaa	ggagtagttt	2400
gcgagcaggt	tgatatacctt	attgtcctcg	acgagcagta	tggtcggacg	tcgtcctcga	2460
agcgatgatt	cagagctgct	accatcggag	atgtcgggtg	tcatacgggcg	cgatgtggac	2520
aggcatgaca	atgtcatcgg	aggaggggtg	caaggaagaa	tctctgccga	agaggactgg	2580
ttttgtgtag	gaatactatg	gtgaaggcac	ttcctttccc	cggctggctt	tccactttga	2640
tcgtactcga	aggtttttga	ccagtatat	ggtaaacgag	agtccgacgc	ctgatcatgc	2700
ttttcggtag	cggactgtcc	togatagaag	atgtcgaaga	tatggcctga	tcagttttat	2760
ctattcctat	gccattgtct	gcaacgcgta	tgacagattt	tt		2802

(2) INFORMATION FOR SEQ ID NO:1160

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 436 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...436

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1160

aacaactaat	gtctcacaaa	ttaatttaag	aacagagatg	aaaaaactgt	ttagcgact	60
ttgggactta	tggccattgc	catgctctca	tgttcaagaa	caacaaggat	ttggagaaca	120
aaggggaggc	tactcttttg	gtaacgttgg	tagctcctat	aaagctccac	gcgaaaccta	180
tgccaagatt	gagaagcttt	tgccgcagct	tatcccgatc	aaaggataag	ctggacatac	240
acgtctctat	tatccgaaag	aaactggctc	agcagggtat	ttatatcgat	gctcggatga	300
ggcttttgag	aaattggctc	gtctgggtta	taagaagatc	aatttacaga	gtcttcatgt	360
gattcccggc	cgagaatatg	atgagatgat	cgctttgttc	aataatttta	aggcagcaca	420
tagtgatatt	actgtg					436

(2) INFORMATION FOR SEQ ID NO:1161

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 342 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...342

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1161

ancctctctt atattcactt ggcccaactta gtcctgagat aatattaact cagttcggcg	60
taagaaaacg ccaatgtatt cgttcctga ttagcggta cacactaaga tcttgggagt	120
tataggttgt tccgttcagg caattgttag ggggcaatcc tgcttttgct tggatcgaac	180
caacattgaa attcggttgc ttttgaccga atgttgagc cgtacaggg agatgggcta	240
taccaagggc aagatggcgg tactccatag aggataacgg gctatcccg acagtcttcg	300
agctacgctg tagagcccgg cgcggtgagc cctacagcgt ag	342

(2) INFORMATION FOR SEQ ID NO:1162

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 460 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...460

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1162

ggtacccgcg aacggtagcc gtgtacacct gatccattac ggctgagaaa cttccagcag	60
gagactgttc ttgagcgtat attccacatt tccggacaga catcgaatat agtagtcgaa	120
ggagtatcca tttccttctc gaacttgaat cgatctttcc cgaacgggca gccggtacct	180
gagccttatt catctttcgc cagcgttgag gttgggcaat gaagcaagat aagtttcgat	240
caatgcttca tcttggttc atccagatta ccgataaaga agaacataaa gtcgcggcat	300
cagcgaatcg ctcattgtag aaagccatta cctgatcgta attactttct ccacgtcagc	360
agctttcatg ggtttcatca tcggattatc gcgtacatgg tatgacggat agagtccata	420
agcgcagcca tcgggttggc tctgatttt tcaagttatt	460

(2) INFORMATION FOR SEQ ID NO:1163

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2504 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2504

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1163

atgcttcgcc atccccttac gtggaccata cttgccacct ttttggctga ttgtcatatc	60
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tcttttataa	gagatacaag	gagaaccaag	ctcgccgtct	gtggtgacac	ctgaggcccc	120
ggctattccg	gcttatgacc	gagctatgca	gccttggaat	cattacgtgc	aaaaaaactg	180
gtggaagccg	gtttgttaag	gaataacttta	cggaattgac	cgatttgctt	cggagctata	240
ttgccaaact	cgcgaaatag	atgccaggga	gatgaccagc	agcgagatat	tacagctctt	300
cagcggatcg	aacttcctga	aaaagggaagt	cgcttgcctg	atgaatattg	caaacggccg	360
acctggccaa	gtttgccaaag	tataaaccca	taattggagag	gatgtggaag	ctattcgaga	420
tgctcgcgcc	tttctcgatg	agtgcataat	atccgggagt	catgacattt	gcatatcctg	480
aattgctttg	ctgctgatcc	tgctgccttt	gatagcgact	tggtatatcc	tgcaagcact	540
aagacttcgg	caacgatgac	catactctca	ttgaagccct	ttgaaggagt	cgccgaggtt	600
tgagggtcta	tctgcgccat	togttgccga	tattgaggct	ctttcggtcg	gttttctcat	660
tattgctttg	gctcgtccgc	agaatacaat	agctggcaga	aagattcgat	cgagggcata	720
gatattatgt	tggtctggat	gtgtcaggca	gtatgcaggc	catggacttc	aagccgaatc	780
gcttgaggca	gccaaagatg	tagcgatttc	ctttatcaac	aatcgtccga	acgcaatatc	840
gggatggtta	cattcgccgg	agagagcttt	actcaatgtc	catgactacc	gaccataccg	900
tattgcttaa	tatggtacag	gacttgcaga	tggtgttctg	gatgatggta	cagctatcgg	960
aatgggattg	gctacggccg	caatcgactg	aaggacagca	aagccaagag	ccgctgtggt	1020
attctgctgc	ggacggatca	aacaacatgg	gcgacatcac	accccgaatg	gcagccgaat	1080
tgccagaacg	ttcggttatc	gtgtgtacac	agtcggtgta	ggcacacagg	agaagctcct	1140
ttccccattc	agacgggaat	cggagttcgg	attcagatgt	gcctgtcgat	atagacgaac	1200
ccacattgga	cggaattgcc	gagggttcggg	tggaataatc	ttcagggctg	tcgataatga	1260
aacgctgaat	gaaactacaa	ggaaatcgac	aaattggaga	agacgagact	tatgaccaag	1320
agctcaaggc	ttatgaggaa	aaatactttg	tctatgccct	tattgctttt	ctttgttgct	1380
gacagagttt	ttgcttcgca	atacactttc	tctgtccaac	cgtaaaaaga	ttcccatggt	1440
cagattttat	tcacccgaat	acttatactt	ctgctgctgc	tcccattgct	tgtgggggta	1500
ggcgtctatg	cttatcgcaa	agacggggcg	aagaaagacc	ggtttgcccc	aacttccgct	1560
gctaaggcct	caaaccggaa	gcaagtacca	aacgtcggat	ctggcgcaac	ggatttctct	1620
tcttgccatc	gttttcttga	tccggatgct	tgcccgtccg	caaatagtat	tcgtgtggat	1680
gtgcctaaag	aggagaaagg	tatcgaggct	atgattgttt	ggatatttcc	aactccatgc	1740
tctgtgaaga	tgtcaagccc	aatctttgag	ttttgccaa	caagtgttgg	gaaagctctt	1800
tgacggcctg	cagacgacaa	ggttggattg	gttgatttcg	caggtaatgc	ttatacgcaa	1860
atccgattac	tacggatttg	tctgcagcca	aacagtttct	tcagagatata	atcccaatat	1920
ggttacagcc	caaggaacgg	ctatcggagc	ggctatcgaa	ttgcctccaa	atctttttcc	1980
gataataaag	aaatcggtaa	gactatcatg	tcctgacgga	tgagagaaat	catgaaggaa	2040
atgccatcga	agcggcacgc	aagcccatga	agcaggcata	cgggtcaatg	ttatttggtc	2100
cggaaacacct	tgggggcacc	tatacctatt	gaagaaggat	acctcaaaga	tgaaacggca	2160
atcctgtcgt	taccaaattc	gacgaaaaga	tgtgccgtga	cattgttcag	caggagaggg	2220
tactttcttt	tccggacaga	gtgcttctgc	gctgttcggg	ctatagagag	ccagctggac	2280
aaactcccca	aagccgtact	ttctcttcgt	cttcttccgg	ctatcgcgaa	gtgtacggat	2340
ggttcggact	tgggctttga	tattgtttatt	gttggaaatc	ctgattcagg	agcggaagag	2400
tggttcttca	gtaggatcaa	attgtttgac	agatgagaaa	ttcatggcga	atgccacctt	2460
cataaccttc	ttcatgcttc	ttgcttcaac	gagccgggtc	cgag		2504

(2) INFORMATION FOR SEQ ID NO:1164

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1070 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1070

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1164

ccgattatgt	gaatgncaat	gtgtttgcc	ttgattttga	cgagaaggcg	tacgtgtggc	60
tcgcacgctc	aatctcattg	ctggtgatgg	acagaccatg	tgctacacct	caatacgctc	120

gactatgaac	gatgggaaca	aaacttaata	gtgaggattg	gcaggacact	tatttcgagg	180
gttggaagaa	actcaaaagc	ttagaacacg	caaggacagt	tatcgtgact	tcaccttcga	240
tatttgatgg	ctaaccaccc	ctttgcggga	gaggtcaagg	agagtcgtat	acttccaagt	300
acgatatgag	ccgtagtatg	tctctcgaaa	aggtgaaaat	agccctaagg	gagcaaccat	360
cgtggagggc	gagccgacct	tttctgaagc	tccgctaata	caggagaaac	catctatcag	420
atgagtgatg	gtacatatcg	aagaccaagc	tcaagcaagc	tggaatatg	agccgagaca	480
tcctctttgt	gagcgtaatc	ttgattttct	caagccgggc	ggtcgtatgg	ctatcgata	540
cctcaagggc	gttttaacaa	cagcagcgac	aaagctttgc	gcgaataact	gccgatcgct	600
gtcgcatcct	tgcagtggta	ggcttgcatg	gcaatgtttt	aagcctcata	caggtactaa	660
gacgagcgta	ctctttgtgc	aaaagtggac	gaggagctat	gcccacgagt	agaggattac	720
aacatctttct	ttgctccatg	caagagccaa	gcaaggacaa	tagtggcgac	aagattttatc	780
gcagaccact	aacgaggagg	gcgagaatgt	tcctttgctt	gacacccacg	ggctcttate	840
gttaagcacg	atcttttcaa	ccacgatgga	ctgaccgaag	atgcatagct	gaagcctttg	900
cagagttcgc	taagaaagag	agactctctt	tttcgcggac	gcccctttga	cgaagtaaaag	960
tacaacgcct	tgtagaggg	ctggaagcta	cggaggtaag	gttgtctaag	ctagaatatt	1020
tcagaatagt	gcagaactat	atgaccgtac	atacctgagt	tatagacgta		1070

(2) INFORMATION FOR SEQ ID NO:1165

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1303 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1303

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1165

aagaggccgg	aagccgaagt	caggatgttg	gtattgaacc	gcaatacgaa	aaccccgaca	60
taatggcttt	acatagcgga	cgatgcggca	aacagccgta	aataccgttt	tttagctgaa	120
cggcttcata	tttacatgtg	caatgggtggg	atagaagccg	gctctttcat	gtcagtagcg	180
ctcttatcgg	ctatgagtca	gctgtcacc	gtgggtacgc	tgggcagatg	tcattccatct	240
gcactgatca	atcagggatt	cctttcactg	agagggctgg	agcgtctgac	ccgagcggta	300
aatccgtagt	atggacgatg	cacgatatgt	ggcctgtaac	agcatttgcc	accatgcccg	360
agagtgcctg	cgataccgaa	ccgaatgcgg	tgttgtccgc	aaatttcctc	ccaaaaggag	420
aaggatttgg	ctcgtcttgt	aggaatagaa	aatcccgagt	aatatcccta	ctccggccta	480
cgcttatcgg	tgtagccatt	ggttggcgca	tttggcacgg	caaagcgcac	tgacggatga	540
ctgcgaatcg	aatcgatacc	gaatcccatc	gacacgaatc	tctttgccc	ggttcacggt	600
cggacgctcg	cgaataatg	gatttgccga	cagacagata	ttgcttctct	tcggagctgt	660
acaggcggat	gatccctcgca	agggcaatac	gaactgtcgc	aagcaatgaa	aagacttcga	720
gagagacagc	cggattaagc	aaacgaatcg	ctcttgctgt	attcggctct	ctccgcgatg	780
aggtagaagt	ctttttccca	attataagct	tatttcgatc	ggttatatcc	gtgaccaagc	840
cgaatggccg	aactgtaccg	tgctgcccgt	ctctttgtaa	ttcctcttta	gaggagaacc	900
tcctaatac	tattatggag	gctctctctg	tggtacgccc	tgtgtggcct	tccgtgtcgg	960
gggtataccg	gagatgatcg	atcgggtagt	accggtatatt	tagccgcttt	tcgtgatccg	1020
tccgatttgc	agaaggata	accaagacca	ttgctctaca	agaaacctcc	cccgaagcgt	1080
tgcttcagct	tgctgctcct	ttgttctcag	gcactactcg	cgtgaagagt	atcctctcgt	1140
atgctgcagc	tctaccgcga	actgctctga	cttgtagaag	aaggaatagg	aaaacatcca	1200
aaacgcaaga	gtcttttcgg	caactttcag	cagataaata	tgacgccatc	tttttggcac	1260
caaaacaata	ccttgatatca	taatcattat	taagaacgag	ctc		1303

(2) INFORMATION FOR SEQ ID NO:1166

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2426 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2426

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1166

cgcgaggccg	agatattggc	tatcaccaaa	aaagcatgcy	aataacgatg	cacgtacctc	60
ttttcaagtt	ggttccgaac	cgctctctct	ggatctgctc	gcgaatatct	ggatagtcgc	120
ttcaagctgg	aactctcagc	ccgatgcgta	agacgtatcg	agcactgccg	ccactatctg	180
gacgagaaag	tgaagcgctg	gacaaaccca	tatacggcgt	gaccaccggc	ttcggctctc	240
tctgcacagg	acaattacac	cggatcagct	taccgnccta	caggagaacc	tcgtaagagt	300
catgcctgta	gctgcggcac	gcccgttcat	gaggacatcg	tgccctgatg	cttctgctca	360
aagctcatgc	cctccagttg	ggacacagtg	gctacagcta	tgcaccgtgc	agcgtatcct	420
ggacatgctc	aataacgacg	tctccccatc	gtttacgatc	gcggttcgct	cggcgcacgc	480
ggcgacctcg	cctcttgccc	aatctcttcc	tgccgcttat	aggtgaggga	gaagtcatga	540
caagggagag	aagcgcaatg	cctgcgatgt	gatgcaggag	ttcggctgaa	gaagatcatc	600
ctcaagagca	aagaaggctt	ggctctgctc	aatggtagca	gttcatgagc	agtcatggcg	660
tctacgccct	cctcaaggca	caccgtttgt	agaggtagca	gactgtatcg	gtgcactctc	720
gctcgaagct	ttcgaaggctt	ggatgcccc	tttaccgaca	acctccacat	catacgtcct	780
cacccggaca	gttggccgta	gctcgtcacc	tgaagggaagt	tcttaaagggt	agcagcagat	840
agcccgcccg	aagaagcagg	tacaggatcc	gtacagcttc	cgtgtatgcc	gcaggttcac	900
ggagccagcc	gcgatgccat	tgccctacgtt	aagaggtagt	cattcgagag	atcaactccg	960
tgaccgacaa	tcccacggtc	tcccgatga	agatcttgct	gtatcgggtg	gtaacttcca	1020
cggccaaccc	ttgccatcgt	atatgatttt	ctggctatag	ccttggctga	actgggcata	1080
tcagcgaacg	tcgcacggct	cagctcatac	tcggctctgcg	caatctgctg	agttcctcgt	1140
agccaatccc	ggtctgaaca	gcggattcat	gatacccagt	atgcagccgc	agctatgggt	1200
agcaagaaca	agatgtactg	tttctcgcag	ccagcgatag	tatcgtcagc	agcaacgggc	1260
aggaagacca	cgttctatgg	gagctaaccg	agcaacgaag	ctgcttccga	tcatagaaaa	1320
cctgagatga	tcttcgccat	cgaactcctc	gatgcggccc	aagccttcga	atccgccgtc	1380
cgaccaagac	gtctccgttc	ttggagaaga	tgctcggcga	gtgcgcaagg	tagctcccaa	1440
ggtggaggag	gatgtagtca	tgtacaaaca	atacaggcag	ccacggagtt	cgttcgcgaa	1500
tatgctttct	aacgaacccg	cttctccgcg	tgattcetta	cgctgaggag	agggagatac	1560
aggctttcga	atgcaagaaa	gagagagtgt	gccacgaagt	attttcgttt	ggcacacctc	1620
ttctcgtata	ggctctctcc	gacgcaataa	gggtaatgcc	catgccgttt	acaagacatg	1680
agatcagact	aaacaatcga	aaacaaacaa	tgacaaagaa	acatacccca	aagctactgt	1740
cctcgacata	tcggcatcag	tagatattcc	gacggcggaa	tcatacagca	acaagtactt	1800
aagaacgaag	tagcaacatt	actctcttct	ccttcgacca	agggcaggga	ttgagcgaac	1860
accagcacct	ttcgaatgct	tcgtacagat	attggaaggg	gaagcggaaa	tagaatcggg	1920
ggccaacctc	ttctcctcaa	agccggccgg	tccgtcatca	gccggccaac	gtcagccatg	1980
cactccatgc	tacgaaacgc	ttcaagatgt	cctcaccatg	atccgcggct	gaaaacgggc	2040
agacatatat	tgccgccatct	gtggacgtaa	agcctccaac	aaataaacia	aggagaggag	2100
atctgtaatg	ccgacagtct	cctctccttt	ctttttcttc	ctaacctctt	gtctacttgc	2160
gactgcctgc	ctcttgcgca	tcattgagttt	gtccacgatc	agcgaatagc	accgtcgcct	2220
gtgacattac	aagccgtacc	gaagttgtcc	atggtatata	caatgctatc	atgagtgcct	2280
gtaaggactc	atcgaaacccg	agctactctg	caaaacacct	aaagccgcca	tgatggctcc	2340
acccgcactc	ccggagntgc	caccatcgta	ataccgagca	taaagataaa	tccggtaaac	2400
aacctgcac	ataaggcatc	ccctgc				2426

(2) INFORMATION FOR SEQ ID NO:1167

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 308 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...308
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1167

cgatctcaaa	ggaagatcgt	accacagccc	tttctgcgga	ttcggtagcg	gacgcgcgtt	60
cttttatttg	gctgcggata	tagggcctgt	tgcttctttt	cccgatccga	tacgctgact	120
gcccgtgtgg	aagaggtggc	tgctgatgcc	gccctttgcc	gttgaaagag	ctgtcgccgtg	180
cctcccgtcg	tctgtaaggg	ggtatgaagc	cctctttgta	cccgggtgatg	gcggatcgcg	240
gaacttcgta	tcccggccat	tttgaaaacg	gctaattgaa	cactcatagc	gatgccgaca	300
gacgaaaa						308

(2) INFORMATION FOR SEQ ID NO:1168

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 3088 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
(ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...3088
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1168

tacccccctga	ttgatcagct	ccgttatatc	gcgagatatt	ttctccacag	ttcgatgtcc	60
tgtgaggtca	ccgtaactgt	ctggctgagc	agatacccg	aaaggctcctg	acgttttgtt	120
cctgccgagg	atcgtaatag	tagttgtttc	tttagagatg	gctacgcttg	agaagatata	180
agacgaatcg	ggcagcgctt	gtttttcaaa	tagtctgcta	ccaatatctg	tttttccttc	240
aaagcttgta	ggccgattcg	agatccatca	tctggagctg	gtacgaagca	gtccaacgat	300
cagatcggat	ttgaaattac	gctcggccat	accggtcaca	gtcccgaagg	ctgagagcgg	360
cgtagctgag	cgacactgcg	gccaagagca	taaggcccaa	tacgaaagcc	aaaccggcga	420
cgatcgcaat	ccaaagtttt	tttttttcat	cacaaagcac	tgtattgatt	ctatatatt	480
acttcttctc	ccatagaata	caggataagc	aaagtaattgc	gtttcccacc	gacgagtcgg	540
atattgtatt	cgcgctccat	accgacggca	aagccgaatc	gctcggagct	ttcagctcaa	600
gcgatccacc	gtactgaggg	ccgaatccat	gcacgggaca	gccatattga	gtcctgagcg	660
cgtactgctg	tagagaggat	agctgcaaat	ccattgacaa	agacattgtc	catcacttcg	720
tatcgagcac	ttccttaagc	gagaacgttc	tattatcgaa	agcattccac	tgtacctgtc	780
gatatcgata	ccggtggtaa	aactcaatct	ctcgggtggc	tgccaacgca	gttgccattg	840
acagccgtca	taggtataaa	gccgaaattc	tgctgccaac	cgcttggaac	tgtgccgtaa	900
gattttgact	cagcaagaag	tcggcaccag	cttccatccg	aagtccttgc	gcacaccggt	960
caataaatca	tggccaagac	gatattgccc	gatgtataaa	aatgcaccc	atcgggtcgg	1020
cgccatgaag	gacaccggca	gcgtggcgag	tttgcaagag	gggagaaacg	aaatcccgcg	1080
ctctgccgcg	aagttgagtt	cctcattcaa	ttgcaaagat	gagcgatagg	cttcaatcca	1140

ttgagcaaag	catcggaag	atgtttgtct	ctaaactttt	cagtgtacgg	gtattctgaa	1200
aagaagcggg	caggacgggg	tgatcatgga	gagaagaggg	gtctgtcca	ccatgtctgt	1260
attcggcact	ggctaascgt	agagagacta	tcctttttct	cttgcccat	cgcagagaaa	1320
agactaccac	gaatatcaac	ccgaacagga	cggttctcgg	acgacggata	agcaccggat	1380
tatcatgagt	cttgcataat	ttgatatacc	gcaaagataa	atattatagg	tacaacagac	1440
ataccgtaca	ggccctaag	gttatcccca	tctacaagac	gaagcagaca	ggaggaggaa	1500
aagaaaggct	aagccgacaa	agagaaggat	acacatccta	tactcagttg	attttcacac	1560
cgaaatttgc	atttacagcc	caaaaattct	gtttgattgg	tagccatata	ctggagggtg	1620
accttttccg	aaggcaactta	gaatcagctc	tgtggcaaaa	gagttcatga	aaatcccgt	1680
caacagtttc	tctttgtaac	tctctgtccc	ctctgttcta	ataccggtct	atgtctatat	1740
tctctgaaat	atccgggctt	gtgatcggct	ataagagtct	attcagacaa	agcaattcct	1800
tgagtttttc	cttttccctt	gcttcagttc	atgggcaaa	ctacttggtg	gcgaagagtg	1860
atcgccacaa	aaaaccgtat	cagggcaaaa	acagaagcgc	gagctgctga	tccattcgaa	1920
gcttttatca	agccaagccc	ggcgttgccc	ttgctattgg	aaatacgtac	tacgagatga	1980
agcggagacg	atgacaacgg	aaaaatcaac	cgccgaaaaa	gtgtagcagg	catcatctca	2040
cagccgatcg	gtttacgtcc	ggaatttttg	tgtttgcagt	ttggaaaaac	gtggtgcgta	2100
aacttttcgc	tttggcgcga	gaagtataaa	aatctcgaa	caaaacgaaa	aaattcggca	2160
ccaccttctt	cagaaaagac	gcgcgcgaat	cagaggattt	tcggccgtat	cgggtgggata	2220
gtggttgatg	gatattgact	cgatagtaga	gctgcctcca	acggcagccc	taagaaaaac	2280
tcgataaaaa	aagcactatt	ctcttgccgg	acatcgaa	gatcgtaag	gacgaaccga	2340
atgaaaacca	atagatctca	tcgcccctct	cgacgaaata	accgatcggt	ccatccgcca	2400
gagagtcata	tcagagtagg	cactcgatcc	tgaattgaca	acaacgggag	ggaccagcgg	2460
ccggagacat	gatcgaagag	atagacagct	ccatcgcgag	cccatccggg	ccgagaggca	2520
gggagtgacg	cacttgatcc	cttccgttct	tttcaactga	agcatagctc	cattacagcc	2580
ggggtcatgg	atgccttgaa	ctgcttggtc	ctcttccaag	taaggccatc	gtcggaggag	2640
agagcgagaa	acgctgtcgg	ctctcctgcc	gtccctgatt	gcgtatgctc	atcagaccct	2700
gccatcgggc	atcaatgaaa	gctttgcctc	atcgccacgg	cggttgacac	gtcggaaagc	2760
tgccatgtat	cagccctcat	cgtcgctata	gagacatagt	tggtcaggac	gtactcctgc	2820
cctgattcgc	ggatggcagc	caaaacgtga	tacgacggga	tggcagcaca	agcccttgtc	2880
ccgaagcaca	aaggaggcca	accagcgact	gcgtcccggg	tcggcacaat	ccttgccgaa	2940
atgaaatggg	ttatatcccg	aggaggcgac	caagtcagtc	cttcgtccca	ctttccgata	3000
tataagtgcg	ctgaggacga	tcgggggtag	actgccacgg	cctactccac	cgacaaagat	3060
catcaggagc	tttctgtctt	gggtttga				3088

(2) INFORMATION FOR SEQ ID NO:1169

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 819 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...819

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1169

ggagagcgag	cgaaagaact	ttctttacga	aagagacacg	gcccgttcga	actggcgaaa	60
cttcagggcg	cggtcgagtt	tcatgagaag	aagatcgcca	agccgggaaa	gaccggacgg	120
ttttcgagga	gcgggtaaag	aaaaacgaga	cgggacatac	caaaacccga	tacggatcga	180
tggagtggaa	gacggcgagg	tatcaaaaca	atcgctcgca	ggctgaaaga	gtacgaagag	240
aaagccggac	aggcggagag	cacatgccga	tcggcgcaatt	atacggcttt	caatatccgt	300
caagagcgaa	gcctccatga	aagagagttt	cgacttcgtg	gataccgggt	ctttgtgaaa	360
ggttggtggc	gcattctatta	tacttacaac	aaggacattt	ggctgaagac	cccaaactgg	420
cctgcataga	ctttctgaat	gcttgagaga	gattcccaga	gtcgtcgaga	gtcatcgga	480
agaactggct	cgacacaagc	caagataccg	acgttcgaaa	cgatgggttc	tgccgtatga	540
agaaagagga	ggaattgcag	gagctgaaga	gacaggccgc	ggagctggtc	gcaagatcgc	600

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cctttcgctc aaaaaagagg acaacagcga agtgaaacgg aagaaacggt cgctcccgat 660
gcgacaatcg catcgatgcg cccttaggga ggagctaaaa agggaaacggt cttccgagcg 720
gaatcatacc gattgaaaga aatacgggag gatgaaaaaa tcaaaccctg cataaagcct 780
ggaagtgtg agagatacag agatatacct gatactttc 819

```

(2) INFORMATION FOR SEQ ID NO:1170

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 588 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...588
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1170

```

atgcgattgg tcttttcgca tagcttctca aaaaccttgg ctgaccgtac tgcgatccaa 60
tatggaagtg caatcctctc cataccagcg atccggacgt aaaaggtggg gcatcagtg 120
aagtgcattc tcgggcaaaa gaccgaattg ttttctgcca atcctgtcgt tatatggctg 180
tgcgtatgcg catcgactca ggattgagcc gaagcaatat cggagcgatg tcgttcttcg 240
atccgccaat cgttcgatgt tcagcaattc gggcacactc tctactacga aagccctatc 300
cgcgccctca aagaaagcaa aatctcttca tcgcttttgc ctatccggca aaaaaaatat 360
cggaagcggg aaagcctgcc tcgatagccg ctcgatctcc cctccactca cacagtccgc 420
cccgaagccg gcagctgcaa cgtctgcaaa atacgaggat gattgttcgc cttgagcgca 480
tagtgaatgg aacatcgtgc ctctctgcac tccgggagcg cgcgaaagc gtcctctcca 540
gagtgtcaga tcataaaaaat agaaaggtgt ttccattgaa aaaataag 588

```

(2) INFORMATION FOR SEQ ID NO:1171

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1060 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1060
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1171

```

aggaaagcat acaggctcga ccacactcag aaaaagataa gtaatggaca caaactcact 60
tctcgattca agcccacggg cgaccagccg gaagccatcg ccaactcgta cagggcatca 120
acgaagggat gccggctcag acgctgccgg cgtaacgggt tggggcaaaa cttttacgg 180
ggctaacgtg gtggcgcggt caatcgctcc acccttgtcc tgagtcacaa caagaccttg 240

```

gcagccagct	atacggagag	ttcaaagcct	tcttccccga	gaatgcggtg	gagttttcgt	300
cagctactac	gactactatc	agcccagggc	ctacctcccc	gtccagacac	ctatatcgaa	360
aaggacatgg	ccatcaacgc	ggagatcgaa	aactgcgatt	gagggccacg	gcttcgctcc	420
tgtagggcg	gaaagatgtg	ctgtggtcag	ctccgtatcc	tgtctctacg	gtatggccaa	480
tcctgaagct	tttccgaaaa	ggtgatcagc	ctgcacacgg	gacaaagggc	agacagggac	540
attttatccg	cctgctggta	gagagctact	acacgaacaa	taaagtaggt	tcgagagcgg	600
caacttccgt	gtcaaaggcg	acagcgtgga	catattcccc	ccgtagaagg	ttatgacggc	660
gtggcataca	gggtggagtt	ttgggaggag	aggtcgcgag	gctgagtacc	ttcgatccgc	720
gaacgggacg	ggaatcggcc	tgctgtcggg	gctgaagata	tatccggcca	atctcttcgt	780
gacgctaagg	agcaggtgga	tcgggcagta	gggaaaatcg	atgtggatct	ggggcacagg	840
tcgattttct	gaaagaaatc	ggcaaaccat	atgaagccaa	accttgtagt	agcgggtcac	900
gtatgacttg	gaaatgatcc	gtgagttggg	tattgttccg	gtattagaga	actattcgcg	960
ctacttcgac	ggcccgtgac	cgggcgaacg	tcctttctgt	ctgttggtatt	atttcccgga	1020
gattttcctt	tggtcataga	cgaagcccat	gtaacgatac			1060

(2) INFORMATION FOR SEQ ID NO:1172

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 731 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...731

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1172

ccccccgtat	ttgcctcgaa	cgggatgagg	agacagcgta	gactactggc	aagaagtatg	60
caaaaaaaga	aaataagagc	agagtatgga	acagaaaaga	ttttcatcac	ctataatcag	120
gcctaccacg	atattatcat	tcgattgtca	gccgatacaa	cctcagagga	tataacctatt	180
gggagactgt	ccgcggtgcg	gtagcgatac	gggtgagcct	cacttgggca	ctcatgcatg	240
gcctagctca	atggcgccct	catggtcgtt	tgtccttccg	agaaaatgaa	aacctaatgg	300
acgctctgcg	tatccttgac	gccgtactc	cggatcaggg	actcgcgcct	ttgtttgga	360
tatcgagcaa	acaatctgat	cggagactct	cggctccatc	ttcttagtat	atgggggctg	420
catccaataa	gttttggtg	cgctcctttt	tattgtctcg	ccgtgtcccc	ccctcatctc	480
gcattcggct	atttacgctc	tggaattttc	tcgtttactg	tccccaaaa	cgtgggtgtg	540
aactttttct	ttttggtctg	ggaagcaaaa	aattctcgcg	ccacaacgaa	aagttctcgc	600
gccacttttt	tcagagatat	tgctgtccgg	taaaattctt	cagctactca	ccattcgtaa	660
gcatttgcaa	gccattacc	gaccgaggcg	ttggctgtga	agaaagtctg	gcgtatggct	720
gatagagcga	c					731

(2) INFORMATION FOR SEQ ID NO:1173

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 784 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...784

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1173

```

gagcccaatc aattcacctc ggtacccggc gagactattc gcgatttggg ctggaaggac      60
aactcagcaa aaaaggaacg cccacgatgg gaggtctgtc attatcatct ccattctgat      120
ccccactcta ttgttggccc gtcttgaaat gtatatatcc tgctcatgat cgtcaccact      180
gtcttgctcg gctcataggc tttttggatg actacatcaa ggttttccgt aagaagaaag      240
agggctgcac ggacgtttaca aaataatcgg acaggttgga cttggcttca tcatggtata      300
gtactgtata tgaatcctgc ggtcgtgata aaagaaaata gcgagtgcct cgggatggac      360
aggtcgaacg tgtacacttc acaaacacgg agtaaaatcg actaagacaa cgatccccctt      420
tgtcaagaac aataatttcg atacgccgat atacttccgc tcgaaggcaa aacaaaagtg      480
ctattcggct gattctcttc gtctgcgtag ctgtagtggg agtcaccttt atatccaacg      540
tgccaatctg actgatgggt tggatggttt agcgacgggg tcttctgcat tatcggagtt      600
gtactggcta tttttgccta tgtctcctcc catatcggat ggctcatat ctgaatatca      660
tgtttattcc cggagcagag gagctgccat tttttgcttt tgctttcggt ggtgccacga      720
tcggttttct gtggtcaatg cttatcgggc acaggctctt atgggagata caggaagtct      780
cact

```

(2) INFORMATION FOR SEQ ID NO:1174

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3570 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3570

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1174

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cttggtagcc gccagagata tttcggcagt acggaatcgc ccggggagaa catattgctc      60
gcttcgcact actgaagatc gtcaggcgaa agatcagccc agtaccttac ggcggcgaat      120
tccccgataa tcggctgact cccgaagtct tctgtctcgg aagcaagacg gtcaaaactg      180
taatacgggtg tcttttctcc accaccctgt tcagcagggtg aaacacataa ggagagtga      240
catgggtcct ccacgatgca gcagatagcg aacaaagcgc aatgcatgca agtgactcta      300
tcgctgacag ataggaatga agaggagaga caagacattg acagatcggg cggataataa      360
cttactcctg ctcttggggc aagatcagat tggtactacc cctactatgg cagccaaacc      420
gataccggcc atcgtaaatc cccgaacgaa acgactgctc cgccgatacc gagcgtaaga      480
gtgatggaca tataataata ttacgtgtcc gactcatatc cactttatga ttgaccagat      540
ggcaatgccg gccgaagcta tcgtaccgaa taggagcagc atgatacccc gagaacggca      600
ggagggatgg atttgagcaa ggcaactgacc ttacctaaagc tgagaaaaca attcccgta      660
cggctgctat acgaatcacc atcggaccgt cacacgagtt agggccatgg ctccggttac      720
ttccgaataa gtagtacggg aggtcctccc agcagacctg ctaccataca ggccaaacca      780
tcgccaagag ggtacgatgc agcccggat cttttacaaa atcttttctt gtcccgtaatt      840
taccacatag acgtcgccga tatgttctat cacgggagca atgccacagg caacataaag      900
aggatgggag gaagagagaa cttggggaaa gaaactgagg caggctcaac cagcgagcct      960
cacgaacagg attcagatcg cctcatagaa aacaacggct atcacatagc ctaccactat      1020
accgcagaaa tggaatcag cttgaaaagc cccttggcca gcatagttaac tagcacgggg      1080
tagcaagcga tatagtagcc agtatccagt tggattgtgc catatccctc cggctccggc      1140
aagcgaaaagt ccgatcagga taatgacagg gccgatacta caggcgaggaa caaacgttgg      1200

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atcacacgta	ctccctgcc	cttgacaaa	g	cactcatcag	ataataaacc	aatgccacac	1260
cgaccatacc	cgaagagcac	cgggcagccc	at	atacatctcc	gtagccttga	taataggagc	1320
gataaggcaa	aactactacc	aagaaaaata	gg	cacctttc	ctttcgtcac	caatgaaaaa	1380
tcaatgtacc	gatgccggcc	gtaaacaggg	ct	gtcgaagg	gctaaaccca	caaggagggg	1440
cactaaaaa	gtagctccga	aagcaacaaa	ag	gaactgta	cgcctacgat	gctttttcgg	1500
agcggagaga	gttgggttgt	tccatataaa	aa	accgatta	taatttgctg	gattttaagc	1560
cctgcaaaat	atggcatttc	cctttatccc	att	gagttgc	atgcttgttt	tgcaatattc	1620
gaacctatcg	tttataagca	gaacacgatg	tt	ccttgggg	ttatactaaa	agtcacgga	1680
ctttatacta	taaaccctcc	atactttata	ct	ttaaacc	tatggcttta	tactataaag	1740
tctcctgcgt	ttatacttaa	aaccttgggg	ct	ttatagta	taaagtctca	aggtaatcga	1800
aaatagaccc	gactaagttt	tttcatacat	tt	gtttcagt	ttttagccat	tatattatat	1860
ggaagggttag	acaaactcga	caggcgaatc	ct	gagcatta	tctccaataa	tcccgtatgc	1920
cgttcaaaga	tggtgcagaa	gaatgcggcg	ta	tcgcgtgc	gccgttcacc	agcgcgtaca	1980
aagaatgatc	gaaatgggag	ttattacagt	tc	gggctatc	gtatcaacc	gaagtctttg	2040
ggtttcagaa	catgtactac	gtaggcgttc	gt	ctggagaa	agcctcgatg	tacaaggatg	2100
tactcccat	ctgtacaaca	ttcccagat	cg	tggagtg	cactatacga	caggacctac	2160
tctttgctga	tcaagctctt	cgccatcgac	aa	tgaccacc	tgatgacatc	ttgaattcga	2220
ccatccaaga	aatccccggt	atcgctctta	ca	gaacgctg	atctctctgg	ccgaaggatt	2280
caatcgtagc	atcaagatac	ccgaggagag	ca	ataagcac	atgcctattt	atacatatac	2340
cctcaccgat	cgatacgcta	aatgccgtcc	ta	tacgctta	cccaattagc	ctctgctgtc	2400
cgaattgtct	cgaaaaggga	ttccccggac	gt	ctttgggt	cagtgcagag	ccagtgggtg	2460
ccgcgtaggc	ataticggac	attgctacct	gg	agttgctg	acaaggatac	atccggctct	2520
caagtaacag	cccgtatgaa	agccatgaat	gg	gcttcgga	ctatgccaca	ttatcaggac	2580
gctttcagag	agaaacggcg	aaacattcga	tt	ccggtctc	cacgttctgg	tactggtaag	2640
tgatctctacc	atgagcaata	tggactaagc	ct	tgcattc	tgacataga	ccctctaca	2700
caatgggggc	tatggctcgc	aaacgcaaag	ag	atcatcga	agaatgcgcc	ggcaaggctc	2760
atacgacctc	aatcgacgcc	tgtccctacc	cc	gcccacc	aacgcattgc	catagtctca	2820
tccggtgcag	ctgcgggctt	cgagatttca	tc	gcacacct	tagccattcg	gccgagcatt	2880
tctgtttcta	tccgtctctt	tccaagccgt	ga	tgcaggga	gcacaaaccg	aagcatcggt	2940
ttgggagctt	tggagcgcac	cgcatatcac	cg	ggattctt	tcgatgtagg	gtcatcattc	3000
gcggaggagg	agcagtgagc	gaactggcag	ct	ttcgaccg	cttgccatcg	gacaagcatg	3060
tgcacgcttc	cctctcccta	tccttacggc	at	cgacacg	acagggacga	gacggtggtg	3120
gatctggtag	cttatcttcg	ctcaagacac	ct	acggctgt	ggccgatttt	cttgtaaaact	3180
gccaggcgaa	gagtggaat	tgatcgacga	cc	ttcgctcc	cgtgctgccg	aaggcttcga	3240
atgatgatga	tgtactgcca	cgaacggctg	at	tcagctat	cgcccgcaca	ccggccatac	3300
tgaaatcatc	tgttcgtgaa	gaacaccatc	gg	taaagtcc	gtagaagatc	gcacccgatt	3360
agccgctaaa	cagcggatcg	cttcggactt	ca	gcaactcc	aaatagcaag	ccgcagcctg	3420
cgggccttga	gaagagcgaa	ctgaaacaaa	at	acgggtca	attggatcag	gtagcagccg	3480
actgccttta	ttggtgacag	ccaatctgaa	ga	actacaat	cgacgcctga	aaccaacgaa	3540
caggccatcc	gcctgttgca	ccccaatgct					3570

(2) INFORMATION FOR SEQ ID NO:1175

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 642 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1175

agtatgtgta	tcaatttggg	agtattgtcc	tatttcaa	acttcaattc	ctcggtgaga	60
tgcttttctc	tctcattcag	gaaatcggtc	tcgtgacat	cgcacggagt	ggatcatgac	120
cgattgggag	cattgggaca	ttatactcct	gtggggatct	cgttctatac	ttttcagacg	180

atgagttaca	ttatcgcat	tatcgaggtc	aggtgcagcc	tctaaaacgt	tggatagatt	240
acgtctctat	gtctctttct	ttccccagct	ggtagccggc	cccatcgccc	gcgccgagat	300
ttcattccgc	agatataccg	ccgtccgggtg	ttggaaggga	gggatatgcc	gaagccctga	360
tgttgataat	gggaggtctc	ttcaagaaag	cgtcatatcg	gactatatca	gcctgaactt	420
tgtggatcgc	gtgttcgatg	cccaacgctt	tacaccggat	tggagaacct	tatgggggtg	480
tatggctacg	cctacagatc	tattgcgact	tttccggtta	ttccgacatg	gctatcggtt	540
agctctggtg	ctcggcttcc	gcttcaatat	caatttcgat	tcaccttaca	gtcggccaat	600
atcaccgagt	tctggcgcag	gtggcatatc	tctctttgtc	at		642

(2) INFORMATION FOR SEQ ID NO:1176

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 831 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...831

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1176

atttaccacc	ttgcccagaca	cacctttgcg	acgatgtcgc	tcagcaaggt	gtaccgatgg	60
aaagcgtagt	aagatgctcg	gtcacacgaa	tattaaacac	gcaatatatg	ctcgtatcac	120
caccaagaag	attgagcatg	acatggacag	cttgccaaca	agctcggaaa	gttcaataca	180
gcgatgggcg	tttaatagat	tgtacaacta	taaaatcaga	catcattatg	aaatctacag	240
aaaagaagaa	ctgtcccact	tccgtttgaa	gttggaact	tacctcaacg	agcatttccc	300
gaaatgtcgg	gaaacaatcc	attcattaca	gcacggctcg	atgagcgcgt	actgcctact	360
gtgatgccgt	ggcacaaggc	ttctctcatc	ccaagccgag	agtatggcaa	gtgaagtcct	420
gtatcaaggg	ctgcatttct	ccgatacgat	acccttggtt	ccgtcttgga	gcgggagttc	480
gagcaggaac	gccgtcacct	cttcccgaac	gactcgctcc	gatactgcta	aaaaacaagc	540
gatacaaagc	gtatttgcca	agtatgacct	tacagacgac	tttgaggcag	tccggaatac	600
gaacatctct	acaccgaact	gacaggcacg	atagtccctt	tatcgaaagc	aatcacctgc	660
ctacaatagg	cggagggaac	gatacctata	atcaccacac	atcggaagcg	tttcagtatc	720
aagagccaag	atatgactcc	gcttcacacg	acaagggaca	agctcttggt	tttgtgtcgc	780
gcacatcttg	tccacgctct	tgaaactcta	aaatgccttg	atatggatat	a	831

(2) INFORMATION FOR SEQ ID NO:1177

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 362 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...362

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1177

cttcttgac	gaggcggagc	ataaattcac	gttcattgac	agctcgggtga	agctccgctt	60
gatgtcggca	gccaagtcag	gagggacagg	cttaccggag	ttcgcagttc	tcgctttttg	120
tcctgtacgg	tcttctccat	cagatgctgt	agcaatcggc	gaatttcttt	ccgtctgacg	180
gtatataaga	tacagattgc	cgtggatatt	cagctctctg	cgcagtcctat	agaaaggctg	240
catacatcgg	ggtacttggg	actccaccag	tccttaaagg	cctcattcca	tttctctttc	300
cgctttgacc	ttgagtagct	ccatgatctt	gctatcgaag	agagcgatgg	cagatctatg	360
gg						362

(2) INFORMATION FOR SEQ ID NO:1178

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1257 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1257

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1178

acccatcctc	tgccggaggta	cgggtatgta	tatcgaagcc	gtgctcaaag	ctaccacctc	60
cccgatgttc	cgcccaaccc	gacgcttcgt	gatcgtctca	aggaaagagt	ttgacagagc	120
tgactcttat	actggctgca	tacggcctct	gcacaataag	acggacgtgg	actcggcaca	180
gcgagctatc	agggcttcga	aatagccgaa	tacatcaaga	acaatccggt	cgaagcacc	240
gagttcctcc	tatcgacagt	ctgattatcg	gtctcgatct	ggatcgcgac	acccacgcaa	300
aaggataacg	gacaggctcc	atgcccgat	gcacgagggt	atgtagagga	agtcaaggga	360
cttctcgaca	gtggcattcc	ggccgaggat	ctatctatta	cgggctggaa	tacaaattcg	420
tcaccttgta	tctgacaggg	cgacggacta	cgaatccatg	tttaccggac	tcgaaacggc	480
cattcaccaa	tcgccaacac	ccagatgaca	tggttccgtg	gcattggagcg	tcgcggttcc	540
ttattcattg	gatagatgcc	ctgctccctg	cggacgaaca	gtgtgaagcg	tcattgaagct	600
ctacggagcc	aacgggtaaa	actttttcct	gaccgaacct	ccttttttct	gccaacgagc	660
agatgactac	acgtacaatc	ctgccatctg	acagcgaata	agcacattcc	gacaggaatc	720
agtcaggaaa	tcggcttggt	atagctattg	acataaaaaat	tgccggagcta	cataagaggc	780
ttccatttgt	acaggcaaac	aatcaactaa	caataacaaa	ccaagcaaca	atgacatcaa	840
accattggca	gaccgcgtac	ttgtaaagcc	ggctgcagca	gagaaaaaac	agtgagcggg	900
atcattattc	cggattcggc	caaagagaaa	ctctcaaggg	tgaagtaatc	gctgtcggga	960
acggcacgaa	agacgaagag	tggtgctcaa	agcaggagac	accgtactct	acggcaaata	1020
tgccggcagc	aaatagagct	ggagggtgaa	aaatatatca	tcattgcgcca	aaacgatgct	1080
tggcaatcat	ctaattgggca	aaacaaaaaa	atcagaacaa	gttaacatgc	aggttggcct	1140
tcaaaaacag	gaaacccacg	tggtaaagga	agagacataa	tccctccaaaa	aagaaaaaaa	1200
taaataataa	agactatggc	aaaagaatca	aagaacaagt	taacactgca	ggttggc	1257

(2) INFORMATION FOR SEQ ID NO:1179

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 392 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...392

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1179

ggcgaagctg	cccaacgact	cgaaattcta	ttgcgtgcat	acaaaagacc	gacaaaaaga	60
gctaccgcaa	cgagaccgag	ctgatgtaca	aactcgccaa	gaactccgaa	gcgataagta	120
caaagcggac	gtaacgaaac	tggctattcc	acttgggtag	acaagatgga	cgaagccaac	180
aaagctttcg	accggaattc	gacctccaca	gccggcgaat	cgggcgaatt	gccccaaatc	240
ccctcgaacc	gtcctcaccg	agtggcggat	ccgataccga	tggcagcagt	agcgcgagcc	300
gggttcgcac	agcggcgatc	tgtagccgtt	agcacggcag	ggaggatgta	ccaaagccaa	360
accactctct	gcctgcatcc	aaagagagag	gg			392

(2) INFORMATION FOR SEQ ID NO:1180

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 598 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic).

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...598

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1180

aagctacttt	acgatcgatt	tgctgaacga	tggagacttt	catcttcgat	tgttggcgag	60
tgtacgtaca	cgcatactct	ccggacgttc	gatctcgttt	cctctacgtg	acgacggatc	120
agatcgagga	attctttccc	atagcgatag	ccttgccgac	acccacgccg	ggaatattct	180
gcagctcttc	gatcgtagcg	gatagaacgt	agccatagcc	tccaatgagg	gatcttgga	240
gataagtagg	gaggcaactt	gagagatgca	cccaattttct	ttctgaggtc	tttctcatgg	300
cgaacaggac	cggatccatg	gccccaccgg	aacctcgccc	tccaccttag	gagcatcgtc	360
atcctcgtec	tcttcgtttc	catcgacgat	ctgaaagaaa	caggtttgag	ggcaaacttc	420
ttgcctttgg	ctgtcacttt	cgcagaccat	aatttttcgat	gtcccgactc	aaatagccgg	480
aaagcagtgc	tgtctgatga	cggctgtcca	tgttgtctcg	gtttcatcgc	ttccgatacg	540
aagacctcta	aatcctgatg	tccgaatgac	tctatatcag	gagtcaatcg	cccatcaa	598

(2) INFORMATION FOR SEQ ID NO:1181

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 474 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...474

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1181

atttattccg	aagtaaggac	ggaacaagta	accgttcaag	aagaacagaa	gagtaaagcg	60
gtcggcagat	ttgtccaccg	ctactttctt	tcatgagcgg	ggaaatggcg	aaaaagaaag	120
gagcaaagaa	atccgataaa	aagcattcgt	tatttttggc	agtgagcaga	tattctttgt	180
ggaaaatccc	cctaaatcta	tgccccatat	agcaatttac	agtagcttcc	tgaacttcat	240
ctccgcgaacc	tggtgatttc	atccttgtag	gtctcaagat	ggtggaggat	gatgtttcca	300
catagatgcc	gatggtcata	tccctattcc	tcatagacat	gacatctccg	ccaatgtatc	360
ctgtaactct	ttggcaatat	agatgggtctt	gcatttttca	aagtattgcg	acagatgaaa	420
agcgactcat	aatcgccctt	gcggattttc	gcctttctct	tcttgaaact	ctng	474

(2) INFORMATION FOR SEQ ID NO:1182

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2249 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2249

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1182

ttttaattcc	ccttggtacc	cggcgcgaga	aataaaaaat	ttacgcgcga	aacgaaaaaa	60
ctgtggttcc	actttttcag	gaaactcaga	ccgcaattca	gatttttttg	gacgtatttc	120
cgaggtgacg	atagatcgaa	ctcgcgcact	acagcatata	cctcctatct	ttgccgagaa	180
aaaggagaat	acccgaccga	aaggcgatag	aaccataggg	atataaatga	ggatattctc	240
catcaaaccg	catcaggcta	atatgacaaa	ggcttacggg	gctggctgcc	ccttcaaatg	300
aaggcagagg	aaacgatcag	gcgaatggat	gaatccggcc	ggtcggacga	tcatttctgt	360
ttgccataga	ctttgagatg	gatgagggga	tctcatatcg	gaaccgctga	atcaaaaaaga	420
aatectattc	gacgtacgag	gcaagggaat	gcacccacag	ctaccgatac	gaatgagagc	480
aaggctcccc	gacttttata	ccccaccccc	aatcattgga	gacctatcga	catcgtttca	540
tcggatccgc	acagccctga	tgcggtggcg	tagcttcttg	gccaatctac	cattgctacg	600
cccattgaga	tgaatatctc	gcttgaggag	gtattcatcg	cagtcgcgcc	tcatacaagc	660
tcttgattcc	cggacgactg	gtttgttcag	tccggaaatga	tttgtcaaaa	tagagaatgg	720
gcaaatattcc	accaaccgat	gaaagggacc	atagatgctt	ccctgccgga	tgccgccggc	780
cgctactgtc	cgactataaa	gaaacggccg	aacatcgac	catcgtagat	ctgtacgcaa	840
cgacctgaac	cgagtcagtc	accacgtacg	cgtctctcgc	ttcgctatct	ggatgaactc	900
cacacgaaca	agggacgact	gctgcaaatg	attcggagat	cacaggcaca	ctccctgcgg	960
aaaaagaaaa	gcgttttcggc	ccattattca	agagctacta	cccgccggct	ccatcagcgg	1020
agcaccacaag	aggccactat	cgaagctata	cgggaggcag	aggggcagca	acgaggctct	1080
acacagggtgt	tttcggttat	ttcgacggta	gcagcttcga	ttcggtttaa	tgattcgcta	1140
catcgaacag	cttcccgatg	gccattacct	ttttcagatg	gcggcgccat	taccatcaac	1200
agccgctgtg	acgacgaata	cgcgaacac	aacaaaaggt	atatctgcca	ttctgatcga	1260
atatgtgcta	tatcaaacca	tccgcatacga	agacggcctg	ccctatctgc	ttgcgctcca	1320

tcagaacgaa	tgagccgcac	gtgcgacgaa	aagggtttc	ccctcccga	aaaccttgcc	1380
tgacgaatct	atgccctccg	gaattgatgt	gcggaatgac	caatgtcgt	ttctatatgg	1440
taaggagggc	atttcggacg	tttccttttc	ccttatacac	cacgccaaat	atcctccctg	1500
cgtatcgtaa	cggctccagc	gatttggact	atcatttgaa	gcaggttgac	cgttcgtctc	1560
tcgaagcttt	ctcaagcaaa	aaggagaagc	cgatgaaatt	attatcctgc	gcaacggctc	1620
ctgacagaca	catcctacac	caacctcctt	ctacatatcg	gaggagactt	ctcacaccgc	1680
gcgtccctct	cttagaaggc	gtacaacgcc	ggtattgctc	caatccggtc	aaatacgacc	1740
ggcagacctg	caaatacgaag	acctaataaaa	gcagaagaaa	tactgctgat	caatgccatg	1800
ctcccccttg	ggctaccatt	cgtatacacc	catcgcatg	tattttttga	ttatcatctt	1860
cgctatcgga	tcgagttatc	cgacagaagg	cttagaagag	gtaggagata	tgcatagatg	1920
cccgatggta	tggccggacg	ttcgttcggc	ttgcggatcg	acaggatatg	tgagatgaca	1980
ccgggctgtt	tgccataggc	tataccgtct	ttcttttcat	caggtcgcca	tacaaccgca	2040
gctctgtcat	caggcgggtg	tattctgcat	cggaatcgag	acgtacagag	aggaacgcac	2100
ctccacgctt	ctctattacg	ataggcatag	ggcaaatagg	ccagctgata	gtcgagtgtc	2160
ctttctggat	ggtacgaaat	cttatacgaa	tgcgtcagca	ccattgatta	agcagccgaa	2220
agcgaaagtc	caaaatccaa	tttgatcc				2249

(2) INFORMATION FOR SEQ ID NO:1183

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 859 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...859

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1183

ccctgttcgc	cgtaatatata	tgttttaatt	cctgtatggt	gcaattgaat	ctgcaaactc	60
gtacctatcc	actgcaggct	tggcttcggt	ttaattccgt	atggtgcaat	tgaaatagct	120
ataaccctcg	atgagtacta	cgagggaatg	gcgttttaatt	tcctgtatgg	tgcaattgaa	180
atgaagtagt	tctcgccgct	accgagaacg	cttcttcggt	ttaattcctg	tatggtgcaa	240
ttgaattttt	cagtcggtag	cgaaaactac	tttttatctc	gttttaattc	ctgttggtgc	300
aattgaaata	acgcatttta	tgtgcgccaa	gataattggg	gcagttttta	ttcctgtatg	360
gtgcaattga	aatttacggc	aaaagggttt	agtacctaat	ggaaaaatcg	ttttaattcc	420
tgtatggtgc	aattgaaatc	attttacaat	ggatgccgaa	accgacagtc	taagttttaa	480
ttcctgtatg	tgcaattgaa	ataagaaaga	agaaagaata	agtagaaata	aagatgatgt	540
ttaattcctg	tatggtgcaa	ttgaaattaa	tgttacacaa	tggtatacga	tgatggtaaa	600
cttgttttta	ttcctgtatg	gtgcaattga	aattttacaat	atctaacgat	gatactatag	660
tgacgttttg	ttttaattcc	tgtatgtgca	attgaaatta	aatcaatcag	acagtatcaa	720
atgaagtgcg	gatactttta	attcctgtat	ggtgcaattg	aaatctataa	aagaaattcc	780
aagaagcatg	attctgaggt	tttaattcct	gtatggtgca	attgaaatta	gcaacgaaga	840
cgattttttc	aatgtagta					859

(2) INFORMATION FOR SEQ ID NO:1184

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2277 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2277

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1184

ctttttttct	aaatatgcct	tagtggttgc	tttattttgtg	gagtgtacaa	tagaaaaacg	60
aaacttcaga	aaacccttcg	aagttcccat	cctaaattat	ctaaccgttg	cacttgagac	120
tggaatgtgc	acaacgccct	gatcgggggc	caaataggca	tctgctaattg	tcaaccaggt	180
catggcttct	accaccgtac	ggcacgtggc	accacacaag	gatcatgcct	tcccacagct	240
gagaggatat	gcttttctcc	tgttcgttga	cagtctgctg	tttttgccca	atggaggagt	300
cggtttgaat	gctacgcgga	aacgaatata	ctgaccgggtg	ctgtacctcc	gctaataccc	360
cctgaatgat	tggaaagaaa	cgagatgcc	cctcttctgc	agcgaccatc	tgatcatttg	420
cttcggagcc	acgcatggat	gcagggcaaa	tccgtcccca	acttcaaaac	ccttggtctgc	480
attgatgctt	gcatggctgc	accaagagca	gcatgcagtt	tgccataaag	aggttcaccc	540
aaccaaccgg	aacgtcactt	atttggcaat	cgactatacc	ccccacgcgt	cagattcttt	600
ctttgccgtt	tctattacag	cttccattaa	tccggaacat	taggatcagg	gcagcgaatg	660
ggggaagact	ctacttcttc	agggcttatt	ctttggcatt	ttcttggggt	atacatacag	720
ggccaatctg	tgacgatagg	ctgtacatcg	gattcccaat	ggagccagga	gttgcttggc	780
aacactcctg	ccactacgcg	gacagcgggt	tcgcgggcag	aagaacgtcc	ccccacgag	840
tatcacggat	accatattta	tggaaatatg	tatagtcggc	attcccggac	gaaagatgag	900
ctgagactgt	cgtagtcaag	cagaacgtac	actttattgt	ctatcatgaa	agcaatagga	960
gcaccgggtg	tttctccccg	aataggccgg	agataaaactg	taccatgtca	ctctcctgcc	1020
ggggagaaga	taatgtgact	gccttgggcg	acgacgaagt	aactctcgct	cgatgggtcc	1080
atgtctacaa	aaagccctgc	cggacagccg	tcgatgacac	ctccgatgct	ttgccgtggg	1140
attctccgaa	tgtagtccgc	cggataaact	tacctatgta	ttcatctgat	ttataatagc	1200
tgtgtttgtg	acatttctca	cttcaacaga	gtttctgaca	aagagcagat	actgagaaat	1260
taaaaagctc	caagcattgc	tttttagaga	caacggtttg	gagcttttct	ccgttttatt	1320
gcttgtcccc	atcagtgcga	gccacagtcg	ctgccacagt	tgcaaccatc	tgtgattcac	1380
tttcgcagct	acaaccgcaa	ccacagccgg	agtggcctcc	aagaactgtt	cgatctcttc	1440
tgccgtcgct	tcacgctctt	cgatgatctc	ccgatgaaat	gaagattctc	accggccaaa	1500
ggatgattga	agtcatttac	actacatcgt	ctcgtacttc	cagtacagaa	ccttgcaagg	1560
tattacctcg	gcacgcgcga	tcggcacggg	attgccttcg	tagacgatgg	aagagtcaat	1620
cggccttctt	cgtctttgaa	gatatacttg	ggcaactcca	atacggatct	tcttgacggt	1680
cgccataggc	atcttcgctc	ttaagctcga	agtcgatttg	tcacccacag	ccagcccga	1740
caaagtcttt	tcgaactcgg	gcaaatcata	cccataccat	gtatatagca	caacggcctt	1800
tcggccgttg	cctctccatc	aattctttct	cctctgcca	ccctacatac	aagtcgtagc	1860
taaggtccaa	aattttattg	ctgaaatact	cattttacca	aaattatcat	gtaaaacgta	1920
ccaaaagtag	tataaaaagg	gatttagtcat	aactgctctt	agaaacagac	gggcaaattt	1980
ccgctctgca	actttcagag	ccatcacttt	cgcacgggca	gcactcggtt	gaatttatag	2040
tagtactctt	tttccaacgt	gcctctgcaa	tttattgtcc	aaactcttat	tgatgatcag	2100
ctccatgcgg	catccgtcaa	ttcggctttt	cgatccatca	gagcacgctt	ttgccgacgt	2160
ctttccacag	ctcgtagcgt	tggtgtccag	ctcgttgtac	agcggagaaa	agcatcggtc	2220
ttcttctgcg	tcagctccag	ttcaaggatg	aagaagcatg	gcgtgggtcat	gaactcc	2277

(2) INFORMATION FOR SEQ ID NO:1185

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 867 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...867

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1185

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cgtatcatcg aactgacacc gaatgggata atagacaaga tcatgggactc gatgactaca      60
tcaccgaccc gatcgtagca gagatgcgcc aaaagcttac ggccaataag cgtcttttcg      120
gccgcgacga gacgtataag caaacgaagg agagataaac ccgagaagca taatggctgc      180
aacagcctgc tttgtctggg tttgtcacc ctctcgcttt atctatcgct gtttcttcgg      240
atcagttgcg gtccggctta ccaactccct gtacatccgc ttatacatcg gcagtcacac      300
cgaagagcct cggcctcacg cagacatag ccggtcagcg tctcacttcc gtggatccgc      360
cctgcaagaa atcgctgtgc atagaagaag tatttcggga ggcatcttcc gctgtttgtc      420
cagtagctgt tggactacat ctccgggact tgcccgatt tggcgcgaa aagctcggcc      480
acctcttcca taaagacagc agctcgggtt cgtgttcggt caaaatcgag ccgatgggtt      540
gtcgaagtag gccgtagcgg tagccgttac ggagatcatc atgaattttt cataatgtac      600
caatcgatat cggtcggatt atatgcacga ataccgcgag agtaagcagt tcggcaaggc      660
gcacctcacc atccgtctgc tcgggagtc cgaaccgaaa tagaaaagt cgcgatcagc      720
ctccagcgtg attaacgggg ggcaactctg cgagcagaaa tatagacaca tcctttccat      780
acgacgtatc gggcagatag gtacgcagtc gttccgctat gtctgcaccg ttggcaaggg      840
caggatcttc gtgttctgcc cgatcat

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(2) INFORMATION FOR SEQ ID NO:1186

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 917 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...917

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1186

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atatggagaa gaatgcactc agctcaaagt cggaaagggc attctctacg gccggaagtc      60
gaaaagggta gtagcccatg caccnaggty gaagtccaca tgctgttgag ttcggcatgt      120
ttgaagtatt ggatcaggct gaagagcgca aaacgaatcc tccgccaagc ccgaaaattc      180
gtcgtgccat cagcggttga tgatggcatc gtctcgccgg cggggttgct ccttcacac      240
accctgtcgg gagggagcga agccaaggac aaggcgcgca aagtgtccat gatggattga      300
cccacagcat ttgcgtcacg gtaagggggc actccgtacc cacaatgcgc cgatcagaac      360
gatgatacag gccacgacgt tgatggtcat cttaaagagga taaaacggcg gatattccga      420
taaagcgatc gtccccacat acggcttttg caatgctgct gaaagaattg tccagaatgg      480
tgatgtcgct gcctcttttg ctacggcagt gccatcgccc atcgagaggc ccacctgtgg      540
cggttgagtg caggagcgtc gttcgtgccc tcgcccgtca cggccaccct tcgtgagctt      600
cctgcagcag gcgtacaagc ctttccttgt ccacggcgca gcgcgggaca tgatacgagc      660
ttcgccatc cgagggcgca gttcctgtcg gttagggctg cgaaatccga cccggtgatc      720
atatccgct ccgtaagctt tcgtcccaac gccctatctg gcgaccgatc tcccgggcgg      780
taccggtgta tcgcccgtta cgattttcac ctgaatgccg gccttcatac agtgctgatc      840
gcttcgggaa cgtcggagcg aatggatcgg ctatgccgac taccatgaa gcggaggtca      900
tgcacgtgga gacgcca

```

(2) INFORMATION FOR SEQ ID NO:1187

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1994 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1994

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1187

```

agatcaaggg ggcgcatcatc ggccgagagg gtcgcaacat ccgtgcattg aggctgctgc      60
cgggtatagag atcattgttag acgatacgcc ggaagcgacg tcttatcggg attcgatccg      120
gtgcgctcgtg agatagcgcg tctggcatgc atcagttggt acaggatgga cgtatccacc      180
cggcacgcat agaagagtgg tatccaaagt aagaaaacag gtggaagaag agatcatcga      240
gacggcaaac ggacggtgat cgacettgga atccacggtc tgcattccgga actgtccgtc      300
tgatcggtaa gatgaagtat cgctcttccct atgggcagaa tctttgcagc attcgcgtga      360
gacagctaac ctctgtgcca taatggccag cgattggggc tgaatccgaa aaaagccaaa      420
cgcgcgggtc tgctgcacga ctccggcaagg tgcccgcga tgagccggaa ttgccacacg      480
ctctcttagg atgaagctct gtgagaagtt caaagagaaa cccgacatat gcaacgccgg      540
ggagcgcacc acgatgaggt ggaaatgatg tctctatagc tcttatcgac aggtgtgcga      600
cgccattagc ggcgcgcgctc cgggagcacg ccgtgagtcg tggaagccta tatcaagcgt      660
ctgaatgatac tggagcaact cgccattccct atccgggctg tatcaagacc tatgtatttc      720
aggccggccg cgaacccgtg tgatcgtcgg tgccgacaag acggacgatg cctcggtgga      780
aacgtctcga acgaaatagc caaaaagaatc caggacgaga tgacctacc cggcaagtga      840
agatcacagt gatccgcgaa tctcgctccg tcagctacgc caataatccc gcacaccggt      900
ggatagtacc tgctcgcgat atgtggcggt ttgatttata cctcctccta tcagcagcac      960
tagaggacta cgccggacaa gcaaaagacg gatggactac cgattagaca atacgacgac      1020
ctccctgaca aggatgcctg caaggggtgt catagccagc cgctcagcac ttatgactgc      1080
tgaatgacat ccccgatttg cccgaagatg gccgattcgt ggaggttaagt tcaagaatac      1140
gcgcaaagga tactacctca acagcgagag gatagactgc acaaagggga tgtagtagcc      1200
gtagaggcca atccgggtca cgacacggga cagtgcgct gaccggcaag ttggtaaaac      1260
tccagatgag taagatcgat acaatacgaa caacggcgag cctttcaaaa tataccgcat      1320
agcaaacagg gcgatctgga taagtactgc gaagcaaagg cgcgagagta cgtacgatga      1380
ttcagtcccc tcagatttct gccgagctga atctggacat gagatcggag atgtggagta      1440
tcagggcgat ggcaataagg ccattttcta tatatcgccg atgagcgcgt ggactttcgc      1500
caactgatcc gagtattgga gagaccttcc atatccgcgt ggagatgaag cagatcgggtg      1560
caaggcagag gccggccgta taggcggtat cggctccttg ggccgccagc tgtgctgtcg      1620
gcctggaaga tgaatttcgt atcgggtgaat acgagtgcag cccgcttcaa gacttagctc      1680
tcaatcctca gaagctcacg ggcctctgcg ccaagtcaaa tgctgcctca attatgaggt      1740
ggatgcttat gtggaagctc gtaaaagatg ccgagtcggg agatcgtctt ggagacgaaa      1800
gaaagtgcgt accctatttc aaggcggatg tattccgctc ggaggtttcg tattctaccg      1860
ttccaatgct ccggtcaatc ttacgactat atcggctcgt cgtgctttcg agtgatcagc      1920
cagaacaagc aggggttcaa gccgggtatc ctggagtatg cgacaagaag cagtcgtccg      1980
gacacgaatt gtcc                                     1994

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(2) INFORMATION FOR SEQ ID NO:1188

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2031 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2031

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1188

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cgaggttgat ttttgcattg ggaaaaacga tcatggctca actatttgaa tcgattattc      60
gtcatgcaaa ggcatacgcg aggatgaaaa gaacagccga atgtaaagag gcagggatat      120
actgcggtat tgtccggaca agagtttaca aagacgaatg ccaacatccc caaggccatt      180
ccctctgcga tagagtgggtg agtaccattg tcagcagtggt gatgaagacg ggaaaagtct      240
cggacgggtcg gacaaatcga tcatcgaaat ggatccgagc ataaataccc ctacattaca      300
agagcacctg tcgtagctgc acctgggaca aggagaaaca gggcgacaga aaaagagcca      360
acaggaaaaa gctgcccgta accaatgccg tcaaccggtt cgtcctcctt cggcaatgcc      420
cgatccgctc tccacataag tgttaccgtg gaggtgcccc gtatggcacc gaggcttgta      480
ccgatggcat ggccatcatg gcctgcttga tattcttgac attccctttt tcgtccatct      540
ttcagtcttg gcagctgctc cgatcagtggt gccgatcgta ttgaaaattc catgaagacg      600
agagcgaata tcgtcatagc catatcgaaac gaaaggaagg ggcgaaatcc atttgcagga      660
aagtgggact taggctctgc ggagagagat aggggcaaat ccttcgggaa tggctgtcac      720
tcccagcgga atgccacgat cgtacaaatg gcgatactgt agaacaaagc ccctcgaccc      780
ttgccacgac cagtgcgcgcg ctgaggatga taccgaggat ggccagcaag aattcggagt      840
gaaaggcccg agagcgacca atgtagccgg atgggatacg atataccggc gttcttcagt      900
ccgatgaaag cgataaacat gccgataacc gcgagatagc atagcgcaga ttgtaaggaa      960
tgcaatcgac gatcttctca ggatattgaa tgccgtcagc aggatgaaga cgatcccctc     1020
cacaaagacg cagccagtgc agtctgccaa gagtagccca tgccttgaac cagagtgagg     1080
cgaagaaaagc gttgatccgc atgctcggag cttgagcgaa gggcagctgg ccaaaaatgc     1140
aatcagcagc gtagccacgg ccgaagaaaag tgccgtgccg tgaatacggc tcctttgtcc     1200
atccctgctg cagcaagaat atcaggttga ccgccaaagt gtaactcatg gtcaggaaaag     1260
tggtcacccc tgcataaaact ccgttcggac ggagtgcctc tcgggattga atccgagaat     1320
ggatgccaaag ttttcatttt ttactgaaga gtttcgttca gttgaaagtc cattgaccgc     1380
aagagtaggg atgcaggaga atttgtccat gcgagcgaag tcctgtgatg ttccatctct     1440
gtccctatgc tgagattgaa atccttgcg tgcccttgat gcgattgagg ttgatccaga     1500
actgcggttc ggacaggaaa cgaacttata cccttctttg agcacagggc ccccgattgg     1560
gttctcttgg ggaaacccca aagatcgagg aagccgttga aggtaagcag accgtccgaa     1620
aggtgcatgt accaagtgcc ggtgatctga taggtgtgga agtcgtcgca cccagatgct     1680
tgtacatggg cgtgatcgta aatccacgtg taaagagggg ttgttgtagg tgtagggtggc     1740
accgattaga gcatcgtgtc cgaagtaaaag cttgtggaga ggcctccgtt gtactccaaa     1800
tgaatggaaa cggagcttgc caaaacttca gttcgcgcga aatctcccaa taggccgact     1860
ggtacccttg cccgtgtaat ccatgtcgat gaagaagaag gtgcttcccc attgtcgggt     1920
gtgaagtttt ccactgtggt agtcagtttg ggacgtccat tagttcgtcg tagatggaat     1980
gaccgaaatc gtagtgcaac tgcacgtttg tgcgttggca cataggccga g                2031

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(2) INFORMATION FOR SEQ ID NO:1189

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 956 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...956

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1189

cagcaacagc	aaggaggagg	agccatcagg	atcagaataa	ggagaataac	acgacaaaaa	60
acaaccgcaa	aaacaatccg	aataccaata	nccaggggcg	cagcagcagc	cccaaccgtc	120
caaacaggac	aatacacaaa	aagatcacag	ccacgacaga	atgaaatgag	tcgtgaaagt	180
gctgaaaaga	tattgaagcc	tacgaacagg	acgaggagaa	aacgcgcgaa	aaagttgagc	240
agatggtaag	cagcgcatga	agcagcaaaa	aggtaattcc	accaagcagt	ggtatccgct	300
tctttgcgat	tagctgtttc	aatcttggtt	tctccgcaca	gctcagaaa	taatgtgtac	360
tttagcatcc	tcttcataaa	agcaatgact	cacggaagaa	cgcttcggat	aatttttaat	420
gccggtgtta	agaaacaaaa	cgatctcaat	aatcactgac	tgtactgtac	gatgacaaag	480
gtgcgatata	tcttacaacc	cttttcttat	gcctcgcttg	gtgtacccat	gcgcagggtc	540
tttcaactga	caagctcctg	cgagtgtggc	gatgggagaa	caattcagg	gagttttacc	600
ctcaaagatg	ctaattggaac	ggaattcaaa	gctcctgcat	gagcgacttt	gaagtccttt	660
ttggcccggc	cactgctaca	agctcatcag	ttccatttcc	aacggcaaga	ccactttgtc	720
tcgaagtatc	acttaacata	taccctgatg	cccaaatcgg	tcggcacctt	tcagatcggt	780
ccggctccat	ccgtgccaac	gaccgagatt	ataagaccaa	gcaggatatcc	atcagggtgt	840
tccggccgat	aaaaaatcat	cgaaaaatac	taagtcttcc	tctcttctc	acgagtcgat	900
gccgtagttt	gttgtccgaa	ccatcatcaa	tagaccaatg	tacgagcagg	aagcga	956

(2) INFORMATION FOR SEQ ID NO:1190

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2367 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2367

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1190

ggtcaaaagag	tttgaaagga	tctgattctg	agcgatagcc	caagagattc	atggtcttct	60
gtcctaattct	gcatcaatgt	atgctcgaat	gcgagtgtct	ctcttgaggt	atctgtgccg	120
gatttgttcg	ttgcaatgta	ttgagagacc	gtgcgttaag	tgcaaaatga	aggctgtgcg	180
gtgaggggaga	accctcgcac	agccttcggc	ttgtaatgtg	atatgaatgt	cctacaggat	240
atttttttcca	aaggaaatcaa	aaacgcattc	tgttcgcacc	gatgtttaca	tcacccgccc	300
attcctccca	tacctccggg	catggccggg	gcggcaggat	tatttctttc	ttgtcagcga	360
taacgcactc	cgtagtcagg	aacatacctg	cgtagacgct	gcattttcca	atgctacacg	420
tgttactttg	gccgggtcga	tacaccggta	gtgtagaggt	tttcgaaaac	atccgtacgg	480
gcattgtagc	gaagtcgtcc	ttgccttctt	tcaccttctg	taccacaacg	gcacctctt	540
accggcggtc	gctacgatct	gacgaagcgg	ctcctcgatg	gcgcgtttac	gatctcgata	600
cctgtggttt	cgtcttcggt	ctcacccttg	agaccttcaa	agcagctatg	gcacgaatgt	660
atgccgtacc	gccaccgggt	actgtacctc	ttcgattgca	gcacgcgttg	cactcaaggc	720
atctttctacg	cgatcttctt	ttccttcatt	tcaccttcgc	tggcagcacc	cacgtaaaga	780
acagtacacc	gccggcgagc	ttggccaaac	gttcttgacg	cttttcgcgg	tcgagtcgct	840
ggtcgtattc	tcgatctgag	ctttgatctg	cgtgatacgt	gagcgatgcc	ttctttgttt	900
ccggctccgt	taacgatagt	agtattgtcc	tatcaaccgt	tactttctca	gctgtaccga	960
gcatatccat	cgtagcattt	cgagcttcag	accggtctct	tcgctgataa	ccgttccgcc	1020
cgtcaggatg	caatgtcttc	gagcatagcc	ttgcgacgat	cgccgaatcc	gggagcctca	1080
ctgcacagat	cttgaggctg	ccgcgcagac	ggtttacaac	caagggtcga	gtgcttcgct	1140
gtcgatgtct	tctgcaatga	tgaggagggg	cttgccgtct	gaaccgtttg	ttcgaggatc	1200
gggagcatct	ctttcaggac	ggatatttct	tgctcgtagat	gaggatgaaa	ggattttcca	1260
tttgacctc	catctatccg	tgttcggttac	gaagtaggga	gagatgtagc	cgcggtcgaa	1320
ctgatacctt	ccaccacttc	taccgtagtg	tcggttccct	tggtttcttc	tacgtgataa	1380
cgccttcttt	cttcaccttg	cgcatggcct	cggcaatgag	gtaccgatgt	tttcgtctcc	1440

gttgccagag	atcttgcta	cgtgctgat	ttctggaagt	cgctgcccac	ttccttagcc	1500
atacctgcaa	tgtgagttac	acagccttta	cagccttgct	gataccacgc	ttcaaatcca	1560
tcggattgct	cctgccgtaa	cgctcttcag	acccacgccc	ataatgctct	gggcgagatc	1620
gtagccgtag	tcgtaccgtc	accggcatcg	tcattgggtct	tgagggtact	tctttcacca	1680
actgggcacc	catgttctcg	aacggggcact	ccaatctatc	tctttcgcta	cgctcacacc	1740
gtccttggtg	atgtgcggag	ctcctacggtc	ttgctaagga	taacattacg	acctttcggc	1800
ccgagggtaa	cttaacggca	tttgccagtg	catctacgcc	cttcttcaga	aggctgcgag	1860
atccatatcg	aatttgattt	cttttgccat	agtctttatt	atttattatt	tttttttttc	1920
ttttttggag	gattattgtc	tcttccttta	ccactggggg	tctgtttttt	gaaggccaac	1980
ctgcagtgtt	aacttgttct	gatttttttt	tttgcccat	agatgattgc	caagacatcg	2040
ttttggcgca	tgatgataat	ttttcacctt	ccagctctat	ttcagtgcgc	gcataattgc	2100
cgtagagacg	gtgtctcctg	ctttgagcac	catctcttcg	tctttcgtgc	cgttccgaca	2160
gcgattactt	cacccttgag	aggtttctct	ttggccgaat	ccggataatg	atcccgctca	2220
ctgttttttc	ttctgctgca	gccggcttta	caagacgccc	tctgccaatg	gtttgatggt	2280
cattgttgct	tggtttgtta	ttgtagttga	ttgtttgcct	gtacaaatgg	gaagcctctt	2340
atgtagctcc	gcatttttat	gtcaata				2367

(2) INFORMATION FOR SEQ ID NO:1191

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1244 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...1244

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1191

cggtctgtct	ccaacagtgg	gcggtcatta	ttcctcttcg	tcaagtancg	tagctttcaa	60
ctggacaccg	tatcactcat	aaacgttgag	gatcgaatgt	ttcgccggat	tatttccgtg	120
tatttcgtgt	ctatggagcc	gatggttttc	gccggaagag	atggcggaac	gattcggcaa	180
acttcacatg	aacgattcca	acgggactac	tatctctcgc	gcaatgccct	cgactatgtg	240
gagaagtcaa	tggcgaagga	cgagaaaagc	accgccgcta	cataggcatg	tcggtagcat	300
caactacaat	atgggtatccg	ttgtcgatgg	cgctccaaagc	gaaagagtat	ccgatacaat	360
cagacactgc	gaggactcat	accggatcac	ccaaaaacga	agccgaaagt	accggctata	420
tcagcctaaa	gcccatacacc	gggagtacat	ttcgcaaaac	gaactcatat	cttactccgt	480
ctatctgcgt	tctctcccga	agcggatacg	ccggacttca	aagagcagtt	cgtgaaaaga	540
tgaaagccgt	gaccaaggac	gatacctatc	ctgtactgac	gatgaatgtg	tcagtgaaga	600
ccgggcaggg	atattggccg	atcctgtccg	gcagatcata	atcatctggc	catcggtttc	660
ttcctttctgc	tcaatatatt	cctcggatcg	tcggcacctt	ctgggtgcga	accgagcagc	720
gacgcgccga	agtagaatcc	gccgtgtagt	gggatccacg	aacaggagcg	tattctcgct	780
catgtcggcg	aggggattat	actgatgaca	ctggctttcc	tgcttgcggc	cgtgcgcgat	840
ggtacgtcat	gttccatacc	gatctttgcg	acatcaaggt	gttctctctc	gccggggacg	900
tcttttgctc	ggattggggg	gtacttattt	gagatgctgc	tgatgggttt	tctcggtact	960
ttcattcccg	tactgcgtgc	ttgcgtgtgc	ctccgaccga	agctatccgc	agcgagtaga	1020
ggtagatgga	tccattcccc	cacgtttctc	ctatacctta	ttatatatag	cagctacgaa	1080
cggccgtatc	gtagtacaac	cgatccgtcc	ggctctgaag	ggcaggaccg	aaacaggact	1140
cctgcccctt	tgccgtcagg	cctttgtttg	cagtttcaaa	ccgaaaaaga	gacaaaacct	1200
tcgttcataa	taggagattt	gattcgnntc	ctaccttggg	ggcc		1244

(2) INFORMATION FOR SEQ ID NO:1192

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1067 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1067

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1192

aagtgtggct	gtccaccacc	accgcccgtg	atatgcttgg	cggcacttct	accagtttgg	60
ctgcatccat	ccctccctcc	gtgagatctt	tcgaaagctc	actgtcagcg	cgcatttttc	120
accaccttcg	gtcgtttccg	ctatgagacg	aagctctctt	gcagttcgcc	ggcaatttgg	180
aaagctatat	ccttggcgtc	tctgcctcca	tgatctcctg	aaagaggaaa	agacggatac	240
cacgggacga	acatcctgct	cgagaagcga	ctttttgaac	ttcagcatgc	gctctgcttc	300
atgtccgcta	tctgtttttt	cagacttgca	tcctcttcga	gcatttcttg	atggacttga	360
tcaggttcgg	attgtttgtt	aacagctcct	ttcagccagc	agaatatctt	ctttctcgta	420
tatgaaacgt	tcggcaccca	tcccgttacg	gottcgattc	gacgaacccc	cgatgctatc	480
gaactttcgg	aacgatacgg	aatgcccaga	tcattgcctgt	agagggaata	tgtgtacctc	540
gcacaactct	accgaagagc	cgtacttgag	tacgcgcact	tcttcgccta	cttctctccg	600
aagagggcca	tggctcccat	agcctgtgct	tcggcaacgg	cacatcgcca	aactcttccc	660
gttggaagtc	ggcacgtatc	cgctcgatac	caattcttcc	accttgccga	tctcctccgg	720
agacatcttg	ccgaatggga	gaagtcgaaa	cgaagcacct	ccgggctgac	aaacgaaccc	780
ttctctccac	atgcgttccg	aggacttcgc	gcagagcttc	gtgcagcaag	tgctagccgt	840
atggttgccc	tctgcctggc	ggcgtttgtc	ctgattgatc	cggccacgaa	agtatccgct	900
gtgctttcgg	gcaatttctt	catcaggtgt	acgagaggtt	gttttcgcgt	ttggtgtcga	960
atatatcata	ggctacaccc	attcgtcgat	cagctgaccg	ctgtcgccta	cctgcccacc	1020
catctctgct	agaaaggagt	gtccgagagt	accacctgaa	agtatttc		1067

(2) INFORMATION FOR SEQ ID NO:1193

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3171 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3171

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1193

gggacatcga	cttgcttcgt	ctcaatctga	ctgaatactt	accggattcg	cttcctcttg	60
tattattctg	acaggcatga	gcggtaacga	acagaccgga	ggatcgcgac	ggaattggta	120
agttcattcg	agaaaaaggg	aaagaattcc	aaattctcca	ccttgaagaa	tcggacgctg	180
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tgtagacgta	gtgctttggc	tgttgaagtt	agctttgggg	cggatgtttc	cttgtgttgg	300
ctgaaagtat	gcactcgaag	agaaatgata	aagacgaagt	tgagcattta	tctgccaag	360

ccgctgtcct	gctttttgtgc	tatggttgga	tagtattaag	ggggcattca	tctctctaac	420
tcaaaaattat	tatgggtatt	accggagcat	attagacacc	gatctatata	aattcaccac	480
cggctatgcc	atgccaagct	attccccaga	gcttatggcg	aatttcgctt	catagaccga	540
atcggcaggg	ctttacggaa	gaattttgcg	agctgggtgcg	aggtgaaaac	gagcgatggc	600
tgctctgtct	ttgactcgtg	atgaaaaaga	gtttctcaac	gagagcttcc	ttatcttcca	660
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ggagcgccta	tccttgccgt	catcagcgag	ctgtactatc	gttttatttg	agcgagccgg	840
attggaaaaca	agtagaagag	gtaactcgat	ctaaagggga	gcgatgcgag	agcatcgagc	900
tacgtttctcg	atattcggta	tgcggcggcg	ttctcccttg	aagtggaaga	ccgtgtgacg	960
gatattctca	agcagtatgc	ggtgagagtc	tctttggtac	gagcaacgta	caccttgccc	1020
ataagcatgg	ctacgtgttt	ccggcacaca	tccacacgaa	tggatacaat	tccatggact	1080
atttacggct	ataagatggc	caattatgta	gccatggagg	attggataat	gtctatgacg	1140
gtgatcttgg	cactgtgctg	accgatacgt	acacgatgat	gtcttcatgc	gcaatttcag	1200
taagaagcat	gccatgctct	ttaccgtctg	agacatgaca	gtggtgatcc	cgagatattc	1260
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attaaggcca	gcttttgaat	cggtaaccaat	ctgaccaatg	agtggggggg	ggcgtagagc	1440
cgttgaatat	cgtaatgaag	ctctggaagt	caagatgacg	gcgaaagacg	actggcacta	1500
ctgtgtaaaag	ctgagcgact	cgatggtaag	catacgggag	agccggaaga	aatccttttg	1560
gcgatgaaac	actgggtatc	aaaccgaaat	aatgctgacg	ggactattct	tcggatcttc	1620
aatccgatgc	atatcggtca	tttggcactg	gccaatatc	tgacagatac	actccgatcg	1680
gacagttgtg	gttcgtacca	agcccgttga	acccttaaaa	aatacccaag	agctgctccc	1740
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cctgtcttat	ccctcatcct	ggttcgccct	cctgatcggg	gcggacaact	gcagagcttc	1920
gatcgatgga	aggatcatca	tcggctgatg	gccaaatacg	gctaatacata	taccctcggg	1980
tcggctatga	agtagacgat	acgacgcttc	gaccggatgt	cgatacatac	atgatgcccc	2040
gcgaatagaa	atctcctcac	ccaaatcagg	acaagcatat	tggaaggaaa	agatctacgc	2100
tattggcacc	tctccctgag	tctcaggacg	tcatagcatc	tgccctgcaa	agttgtttgc	2160
accaaaaccg	tgaaaaaaga	caagctatgg	aagaagaaa	aatggcacgc	tcgtctgctc	2220
gcaaagcaat	gctttggcag	aagaactcca	acgatgcttg	ccgagacagg	catcacggcc	2280
tattttgcgta	atgaatacac	caacgtatca	taggcccctat	gtgcgatgtc	ggcgggtgtga	2340
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ctctcctgcg	caatcgtcct	ttggaacaac	ggttatggac	attacgggac	tgctcctggg	2520
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aaaccgctta	gtaacagcag	attatttcta	tcgcaactct	ttggatactg	ctcgtagtct	2640
atgccatggg	gcaggaaaac	cgagtggaca	attatttttc	ggcatcatcg	cctccgtatc	2700
atcgtaattg	tcactatcta	caaagacatt	cgtcgcagag	gaaatagaac	gactcgccac	2760
ttttctctct	gatatcactc	tcattacaat	ccctgtatca	ttgttctcgt	aagtctctca	2820
ccttttttct	tgcccttgcta	tttgtgttat	ggttcttttt	agctgtggca	ccaagcgaaa	2880
actgccttca	cagtcacgcg	cgattatccc	aagcgggagt	tccgtgcagc	ttggatccaa	2940
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gaggttggat	aaactcaaag	aagccggctg	taatgcgaca	ttttccagat	caggcccgan	3060
agcgatgcct	ggtacgaatc	cgctataagc	cgtggagccg	tttcttgaca	ggccgacagg	3120
gacaagcccc	tacgcctttt	gggatccact	ggctttttatg	gtcagcgaat	g	3171

(2) INFORMATION FOR SEQ ID NO:1194

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2303 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...2303

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1194

gacggctctc	caacattcat	acctttgacg	ccatgccttg	cctaggcaca	gcattgacga	60
cttggatgta	tctctcattc	gtaaggagtt	tttgcacagg	ctgtggcaga	ggatgttctc	120
ggtgaagaca	aacgagatat	cacggataat	ttgcctctct	tggcttatat	gattttgcgtt	180
ataactgtcc	gactaagggg	ctattgtcct	attcggaag	aatcctgagc	gacacgtaca	240
tgggggtata	ttcaatatgt	tcgcttcaag	ggtaaggatc	gtgcgggtga	tatttcaacg	300
aacataagtt	tagcggtaat	ctttgtcggg	tattgcctaa	gatgatgctt	ttgtcgagac	360
aagtatctca	caaaagcgtc	ccattcccg	gatgtacttc	gggaagaaac	agtttccaag	420
tatccatact	gggctactcg	aagttgttga	tgaatgccat	tatgcacagg	gattacgagg	480
gaaacgctcc	attcagtttt	atgagtatga	tgatcgcatt	gagatccaaa	accccgccga	540
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ttgccgaagc	aatgaaagtc	ttgggctatg	taaaccgttc	agccgtggag	tctatcgagt	660
tcagaaggag	ttggaagaaa	acggtaacgg	caagcctctt	ttgatttttc	attgattaca	720
gcttttcgag	tagtcagaac	gtttctcaaa	agtattttga	agaaggcttt	gggggagaaa	780
cagccaagaa	aagcacagga	aagacccaag	aaaagcccaa	gaaatataga	ggagaaatat	840
tggatgaaat	aaaagacttt	ccgcaagtta	caaggaaaga	ttagaaaaaa	ggttaaacag	900
aacggaggat	agtattcgtt	attatcttag	gggatggtta	aagaaggagt	tatcaagcac	960
gaaggctcta	caaaggcagg	aagtggataa	tagtcaaata	gaatgtgaag	aagggtgtgt	1020
acataatatg	agcggctctt	tattgcttgt	attggttgtc	gtgctcacag	gagcactctt	1080
ccgagaatca	gaacgaagac	aaaacagtgc	attttgaatg	ctcctgtgat	gtcgtttttg	1140
ctatcgtgac	caacaatcaa	gaatggcatt	acagaattct	ttggatgatt	tggagatcat	1200
ccgtatccaa	ggggatattg	aagaaggcga	agagactgcc	aatggcgtaa	ctatcagatt	1260
caagacactt	gagagagacc	gcattctttc	tacagttttg	agatggatag	taaaatgttc	1320
acaggaagtg	gcaagcaata	tttgaaccga	tgggaaggagg	taaaacccta	ttactgcaac	1380
agaaaagata	gaatacaaga	acctgttcta	tcggtttggt	ggtatgcttt	tatggactta	1440
aacaagttta	tgaccacata	ccaagaagaa	tcacagctcg	aatagaactt	gaaaaagcag	1500
agcaataaag	acgatataac	gattgtttgt	aatagattta	agaaatcaga	tttgtaccat	1560
ataattgcat	acgctgtaaa	tcaatataga	tttgttttga	ggaagaagaa	gggtaagtac	1620
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acgcaatgaa	tgagaccccc	gtattagtcc	tgagtctaca	ttgtacttgc	tgttttgcc	1740
aagttcggca	cccatgtaat	ccgaagagga	cgcctttttg	tcgtgtagaa	tccgtatgca	1800
attacctgtg	gcaggttttc	gtctcttcat	cgataaggta	ggcttccggc	tgcaaaccga	1860
taaatcgagt	ataataagaa	gtatgtgcct	aagtaataac	cagacaaatt	gcaagagaga	1920
aaatccacaa	gataagtgtg	atgatcggtt	caacgatgta	aatatcgaga	tccaaaatct	1980
ggctccacgc	ttttcagaga	accctcgag	tagaattttt	tctgggttgt	cattttttcag	2040
tcttggttat	tgttttcgtg	gccctgttca	tttctctaca	gaatgcctcc	ggctggtaaa	2100
gctcgacaaa	gtatgggttt	tcatggagag	tagttttact	cttcgagtgt	gggtttatca	2160
cattcggtcc	ggacatactc	cgtcagaggt	tttctctcag	tgagtttcgt	ccaaagccga	2220
ctatccaacg	cagtcgcccc	ttttcttcat	caatactact	gccaccggca	tacaagccca	2280
caggatgagt	gcaggaatgt	aaa				2303

(2) INFORMATION FOR SEQ ID NO:1195

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 706 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...706

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1195

atcggagcta	agctctaccg	ttatgcagga	gatagagagg	taattctcta	gtacttgcca	60
atatcctcac	ccttcaaagc	agcattgcta	taccgacttg	tatttcttca	agctctctct	120
tccgcttttg	gtcaactttc	gtatctactt	tcgggtaata	ccatcttttt	catcctgaaa	180
agcatttttg	aattttccagc	aagttcgatg	aagatttttc	cttttatctc	ttggagtttc	240
tcctctcaag	ctctcctttg	gcaaaaagtc	tatcagggaa	taagcccacc	ttttagaagt	300
ttcttctgga	acatctttgc	catctcgatg	tggagagaga	acccaaagct	tccttccggt	360
cgctcttctt	tgggtagtct	ttcgagcaat	tccgcattat	ccaagagaag	aggtagctcg	420
ccgtccaaaa	ggacttcacg	ctcgagcctt	gtctaagggt	ttacatatcg	gcccattggt	480
tattgctgtg	atatctcatt	actcatgaca	attcttattt	aattgctcgt	aaatgtcttc	540
atggctcga	aaatctcctt	tgcacccgtt	aatgaatcat	attcacctct	tgagattcaa	600
aattaactct	gagaatattc	attaaaacat	tgatagacaa	tatcttcttg	aacttaactc	660
taagacagcc	ccttatgcct	ggatgattac	tacaacctgc	ctcctt		706

(2) INFORMATION FOR SEQ ID NO:1196

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1822 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1822

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1196

ttcgccaaaag	accgaaccat	accggctgag	tgggaacctta	atgccacggc	ttcttttctc	60
cttcgctgca	ggaagccgat	ctgatgagac	gaatcatgct	gocgatactt	accggcaatg	120
gttcgaacag	ttttttacga	ccgaggggtg	gaacgtctgt	gtacacctnc	catcgatatc	180
gatctgaacg	actatccata	gtccatctcg	taggactttc	cttttccaga	gcgtgggtgta	240
tgggactata	cgagggcctt	accggcgcaat	gatggcatcg	gaatgcggat	gcgaaaagca	300
gccaaagcggc	attacgaaga	gggcatgaag	cagatattca	atacaattat	ggtaggcgatc	360
attggctggg	gagctttgcc	gcctacgcct	ataggagata	aagtggctga	tcgatccggct	420
gtaatgagat	gagatatctg	tagaacgatg	gagatagttt	tttcgatcaa	gtatcgagcc	480
gattggggggc	acgcctctgc	atatcgggct	cttcggccga	attgggaaat	tgggatgaac	540
acttgccctg	gagctgacag	caacgggcga	ggacagatgg	gaaggaaactg	tgatcataga	600
cggtcgcgcg	aaggatatac	agtattacta	tctggtagag	acgcgcgaagg	caacgccatt	660
cgcaaggagt	ggaaacgcac	gcaccactgg	tattggatca	tggttacaag	cgagtgtctga	720
tggacgatta	ctggacgatc	gaccgaaaaa	tgcacctttt	ttcagttctg	ctttttacga	780
tgtttcttcc	gccaatgagga	gaagctgaaa	cgtgccccga	aaccaacgaa	agaggcgctca	840
aagtcgtcat	gcagctatat	gctccatgtg	ttcaccgccga	ccgaagatct	gtatgacggg	900
caatagtcct	gctcttgcca	actggtcagt	gagcaagccc	gtgccatgca	ccatttgggga	960
aagggcgaaat	ggtctatcac	ctagagaagg	atgaattacc	tccacttttg	gaatataagt	1020
ttttcattgc	ggacaagacg	actgctccga	catccgtttg	gaagagggag	aaaacagact	1080
taccgattcg	aagagacgga	tgccataggt	gccgtctatt	tgcccggtc	tggttcccg	1140
agggtgatta	tatgccacgc	tatgccggca	ctatccacct	ctattcggac	tgccgaccca	1200
caaggattgg	ggcataggag	acttcgtgca	ctncccgta	tggtggactg	ggcggaatg	1260
accggccagc	gcataacag	ctcctgccca	tcaacgacac	cacttacaca	cgctcctatc	1320
gcgctcctat	ccatataata	tagtatcggt	catcgccatc	catcctatct	atccgatttg	1380
gatgcgctac	cacgactgaa	gaatagtgt	ctgatggcaa	aatggagaag	caggccgaag	1440
cactgagggc	actcaagcaa	atggattatc	ggctgtgttg	gctctgaagg	aggaatttct	1500
gcatgccttg	tatcgacaga	aggggcgaat	gtgatgcgca	agaaagcttt	ccgtcaattc	1560
gtctcagcgc	ggccgattgg	ttggatccat	atgcggcttt	ttgccatctg	cgcgacagta	1620
cgagggactg	ccactccatc	tgtggcctga	atatacgtgg	ggaaaaacca	aatcgaaacga	1680
atggcggtat	ctcccgaact	gaaaacggag	accaatacta	tcgcttcgta	caattttttac	1740
tccacgagca	gctgcatgcc	gtatggccta	tgccgaagaa	aaagggatcc	tactcaaagg	1800
agatataccg	atcgagtcat	cc				1822

(2) INFORMATION FOR SEQ ID NO:1197

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 801 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...801

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1197

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accgaaaatg ccgagattgt tgacgtgtac tgaaaaaagt tgacagttgg cgggatgcaa      60
ccagtatcca ttatgggcaa acatttaaac aactttgacg ccttagcatc cttgaggatt      120
acctctcggg gtcagatagc aaagtagcat tgagcagaaa tatggtctaa gtcattggtct      180
cattcgctct tggcttgtaa atttggactc gaagataaag ttcattccgg cccaatgaaa      240
gtgtccaatc cccccagagt gagctacccc tgaacgaaaa agaagagtta gagcgctacg      300
taaagaaaaat cgtgtcctca agagtctgtc caagcgagaa gaatagggca tcaagcctac      360
aagctacttg tagagttggc agaagaaacc taggcattca gatacgaaaa aactccgaag      420
ccaagtagtt caccgtttat cgagccagag cctagggtat ctattgctcg actctgcgaa      480
ctgcttggct tagccgtcag gccttttata aacgtcatct caacgattta gctaggcaca      540
ggaggatgtc ctatgcagta gtatcatcca atattggttg cacttaagca agcagagcac      600
ctacctcaag ccggcttcgc agagctcatg gtgcttttca gcaatacttc ggccccaagt      660
tcacgcttgg gcgcgatcgc ttttgccctc actcagacgc catggtatga tgctgcgcaa      720
acggtctgtg cgccccggac aaccaactct cggcataggc tctacaagta tgaagacctg      780
ctcatacaga gcctaagttt g

```

(2) INFORMATION FOR SEQ ID NO:1198

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2477 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2477

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1198

```

gccagaact cctctttact cctctcctta ttttgcaaag gtctctataa ggaaagagac      60
taaaattttc aaacgcgac gtccgtctgc attgtccatt agaaaatatt cttatatattg      120
caccgtcatt aagagatgcc tcatgtattc ttgattagga gagatggcag agtggtcgat      180
tgccgcggtc ttgaaaccgt tgaactgcga ggttcggggg gttcgaatcc ctctctctcc      240

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gcaataagg	tgtaaatcag	cgagttatgc	gatttacacc	cttttctaca	cccaaaatgc	300
cgatagccta	taagacgata	aacgagccct	tggagcttct	tgaggagccc	aaagggctcg	360
gcttggtttc	ccacattctc	ctaatacatc	ctccctttcc	taggctattc	gggctgtctc	420
atttcgccta	tacatttgca	ggtcagagct	attcaagacg	atgcttgaag	actctcgaag	480
gctcataaag	ctcattcaat	tggattgaca	ccgcaatgta	taagcaacta	tgacactacc	540
gaactcctcg	aaaagcccgt	atggaagatg	acgggtgaag	aactactatc	ctagcccaac	600
agggatcaac	gcaacaagag	ggagacacac	aagacaagcc	cccgccaaag	aagaaagaca	660
cttcgtttac	ggactatcag	gactcgccga	ctcttcggat	gcagtctccc	taccgccaac	720
cgtatcaagc	aaagtgaag	atagaccgag	ccatcacgca	aatcggctcg	aagattatca	780
ttgagctgac	cttgccctcg	aactcgctgg	gcgcaaagta	ggaggacgaa	gataaccacc	840
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tgtgacggat	gcctttgtct	ttccacccat	ctcttgctgt	tggatgacgc	tatcatcggc	960
acgtttggca	actttcagtg	tccacgggca	agggcaaaag	taagaaaacg	ttcaacgtct	1020
gcgccttggg	gcagcagccc	ttgtcaatgg	gcaagtgtcg	gaatatcaag	cgagcttccc	1080
gagagcaagc	gcaacattct	ctacttcgat	acagagcaaa	gtccttacat	tgtcagcttg	1140
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gttttagccat	ttgcgctcaa	tagctgtccc	gaagagcgta	gagccatcat	ccgctatgcc	1260
atttaccaca	caccaatgtt	gggctagtct	tcattcgatgg	cattcgcgac	ttgatgcacg	1320
acacaacaac	tctgccgaag	cgaccaatct	ctgtggcgac	tatgtgcaat	ggctggagag	1380
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acataggcac	agaactgaac	aacaaaacgg	aagtgtcttg	ctcatcacca	aggacaacag	1500
tgatgctgac	aggagcggtt	ctcagcgctc	atcattcgct	ctaagccttt	ccctcccttt	1560
gcgttttagct	caccgaagta	gacaacatct	gcctacgcga	gttagacaca	gacttcaggc	1620
caaagacgca	cagcctttct	cctaccaaga	actaagtggg	gaggagatcg	cacagccttg	1680
cgagaagcct	ttggccaggc	ttgtgagttg	ggctaggcga	cctattgaag	cgactcagct	1740
catcatactt	agggtgtcagt	ggtcacctta	tggacagacg	aagctcaaaag	aattgctccg	1800
ctttctcgtg	aacaacgtat	gctcgtcaag	gctagcagag	gacgctatca	gttcaaccca	1860
gattccatta	ctgacacatc	ggttcggctc	ggcgaggctc	atatatgcct	gccaaccgac	1920
caaccataaa	taaagaatgg	tcggacggaa	ggagtgccta	agtaaacgtc	cgaccgacca	1980
aagaagaacc	gccaaagaaa	aaacagcatc	agctacacga	catcaagcaa	gtctccatcg	2040
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gcgtacaagc	tggaagcatc	ccaagctctt	actgtatctc	tcggagcgag	ggctacagcc	2400
cctgatgcct	ctcccttctt	atcggaagtc	tattacaaag	tctctaggaa	tgtttctttg	2460
cccgggggac	ctctaga					2477

(2) INFORMATION FOR SEQ ID NO:1199

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2727 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2727

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1199

tcacgggttg	cgataaaattt	cttttctctca	accttcgttaa	tgagggtacga	ccatcgcgga	60
aaaagatgat	gacatcgctg	aggctcggagc	agttgcatcg	aattcatcgc	ccttgagtcc	120
cataccgatg	aacccttctt	cgcggttata	tagagttttg	cattggcttc	tgccaccttc	180
gtggcctgaa	tggtgcgaaa	ccgataagtt	gtgtccttcg	cgggaaacgg	gaagcatagt	240
gctcggcgga	tactcgaacc	aacggatggg	gtaagcagta	atctcacgga	tattttttcc	300

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agttcggcaa tatecttttc gagctgaagc atcatggcct cgtcttgggc aaattgaagc 360
ggaggatccg tgccatgcgt atttccaaca actcttcaga tcgtcgtagg taatggggcg 420
aataaaacga tgggcataag gtccagcctc gcctctacat gcatgagagc atcctgttcg 480
ctctcggcct ttcgaactca cgatctttat agatacgtc ttctatgaaa atccgctcgg 540
cgatgctgcc aaatactgtt cccgctttctc ttccaaacgg atcgtcagtc ttgcttcagc 600
agctcccgtg ttcgctccgc actataacgc agcaaatagt cactcccaag aataccggct 660
tgtcgtccat gatgacgcaa gcattagcga ctgacttact tcacagtctg taaaggcata 720
gagtgcacg atggtttgtc cgaagataca cccgcagcca gatgaatacg tatatcggct 780
tcggagccgt catatcatct attcgtttga tcttgatctt gcccttttca ttgctttcag 840
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gactctatat ccggttggtc gttgtcgaaa gaactctgtc tagttctttg gatggctgtg 1740
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gccccatacc gatgcogaac gaaaagaaaa agcggcaaaa ggctccactc tgagagatca 1980
ccggcaacgt tgaagatcaa caacacgacg acgagcagga caaatagcgt cttaccgagg 2040
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ctcgggtgtc cgtcatgctc cagcagcacg taccgaggat gcggtcatcc ggaccaaagg 2640
cgatgactac gggagtagcc cgttgtagcc ttccacgtcg tctgtatagg gcgatgtgta 2700
gagcaataac ccaattgacg cgcttgga tccataacaa tggtacagat actatctctt 2727
ggacgatacc ggctgccatc gggtaga

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(2) INFORMATION FOR SEQ ID NO:1200

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3195 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3195

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1200

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gtcggcatgg ccgctgatgc gtattactac accgcgatac ttctggatag ctctttgtta 60.
ccctccttga tacgatattc aacagtgatg gtgtcaccct gttaaacttg ggatgttctt 120

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tccctgattt	gaactcttcg	ttaacgattt	aataaaatcc	atgtgtattg	ctttttggat	180
tagctaaata	ctaaaccaat	atacacaggt	cgcacgttat	ttcctgtcag	agattacgca	240
aagcgctgca	aagtaacaaa	aaagctctca	atcggcaaaa	ctgaacttca	acactcatat	300
tcagaagaaa	ctcgttcgaa	tgaaaccaca	acaactaatg	acctacaact	ttaatttttaa	360
tgcgtcagcc	ctgtataagt	gctgcttatt	gtcaaaggct	tcatattata	agtacttttg	420
ctcgaagac	aaactacaag	gtggaaccct	tcgtacacct	gcacgtacac	tcccaattct	480
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ccgggtattg	ctctgaccga	tcatggagcc	atgttcggca	tcaaggagtt	tacaactatg	600
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aaaatacggc	aaggagagag	tggcccacat	catcacctac	ggtacgatgg	cacaagagt	1920
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agctcgacca	gacaaaattc	ccggagagag	aaagtcaatc	tgaagaaagc	aatcgaattt	2040
gttccagagc	tgaagcaaca	tcgctaagct	ccgataagg	aatgcgcgat	accctgaaat	2100
acgcccgaatg	ctggagggga	atgtgcgcaa	tacagggtgtg	catgcctgcg	gtatcacatt	2160
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aacctgaata	acatcacgga	aataaccaag	ctcatggatg	agtgcagtc	atgaagatcg	3000
gcgtattggt	accggatgtg	aacgagtcgc	aaatgaaatc	tcagtaaatg	ccaatgggga	3060
tattcggttc	ggtctcagcg	ctgtaaagg	gtaggatcgg	gagccgtgga	gcagatcatt	3120
gccgaacgcg	aagccacggg	ctatataagg	acatcttcga	ctttgtggag	cggatcaatc	3180
tctctcctgc	aatcg					3195

(2) INFORMATION FOR SEQ ID NO:1201

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1872 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1872

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1201

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gcggtgagcc ctacagcgta gcgagccgag ccgtagagtt ccgctccgga gccgtagagg      60
tggccgagct gagccgtaga gcccggcgca gcgagccac agcgtagctc gaagagccgt      120
agagcgagc tcggtacgct ctacggctag cccgagtcgc tgtaggcggt agctcgaccc      180
cccttcggag tatattcgaa cggctataaa acaatgagga ttcgatctga agaaaaacat      240
gcaattgctg tttgtcagcg tatttcactt ctcagttcaa agatttcagc ttcggaggct      300
ccgacatccg atgagacgct aaacataaaa aagtaacgca atggatcaag ggacgagtac      360
gttagatgta gccaaaagga ttacaacgta ccttagctcc gatttatgaa aaatatttgt      420
cggtgggggt taagattttac caaagaaggt gaaattgaca gaaccgtagg ctctatgttc      480
ctcgaatcgg gatgtttctgt aaagctgaaa tccttagggg gctcgaggat gaaaagccct      540
cttctgccag tatgttaact tctaataact tggtcggtag ctgctccact ctgtcaaggc      600
gtagggtgga tcggcaaaaga ctaagtcata gcggtggata ctttgttgcg ttccagaaat      660
aaaaatacat ccgtctcgaa gactctcagc agttttcttc gttcagatgc ttaatgaggt      720
tgcaataaaa ggctgatgct cacggcggtt ttctatggaa gtgacggaag aacaaccccg      780
agatctaatt ccaatgctat actcccctg cgggagaata ggtcgatagc cgaagtcctt      840
cgaaatcgaa acggttggtat aggatgttga agaggttctc ttggcaaaat ccgttgtagg      900
acgggcattg aagctttttg gtacatcgaa agcctgtgtc cgtatttacc tctgattaca      960
cgcatagggg aagaagtgga gagagagttc gaatatggcg ttacaccggc tctttgcaca     1020
gttcgatatg cggaagaacg gctccaatat ttgctgaga tcattctttc cgacagaggg     1080
tcgcgatat tttgttggtat acagataacg atacggtcat gctctattcc aaccgtaagc     1140
tcttcagac ggtgaccaga tagaaaagga cttcctctcg atggagcgaa cgccttgatt     1200
gtccgtgaag ctgtatgtat tggcaagagc agactacctc cttcgaatac gaagaggtcg     1260
agtttgatc gccgagattg agggcaactc ttttggcgt atgttgctg ctctgtcgt     1320
ccgttctttg aaaaagggga taaagccgg ggtgaactct gttccgatct gttccttctt     1380
agaaattcat agagaggctt gtcccaagcc aaaatcagca tttatcctga tgaggcaggt     1440
tgtactccat gacggctacg cccttgctt gtccggcagg tggatggcag tcctcagcca     1500
atagtccgct ctaccctctc gtacaaagcg cgaggaaatga gaacgtacga atccggacga     1560
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cgtagctttc tgcaagtgtga gcaggagggt agccggaata tcggaagcag ggatttccac     1800
gcgctatgct tccaaattat tcccagttac cggtattctt cacttctttc agcgatccga     1860
tggaaggccg gc                                     .                      1872

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(2) INFORMATION FOR SEQ ID NO:1202

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1423 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1423

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1202

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ttaatgagtg cccctttgag acatcaacga catgaccggc aacagcactg tgctcctcca      60
atcatcgct tgctccccgt atatgcacct gtgccacgtg tgccgtctga ttcacattgc     120

```

gtccatacga	gccgataccg	cctccgggtcc	aataatccat	ccggccacca	tcggcacaca	180
gtagcaacca	ataatactat	gaggagacct	ttgcacggca	attgggatct	ctaacacatt	240
aattcggctt	attccggacg	gagcatcatc	aggcctatat	gtgtgttaac	acttaaatgc	300
gatcgccctg	ccggatggac	gatatattggg	actcgaatgg	gtaatatctt	tatatattgcg	360
accatatgag	aaaatcactc	actattaaaa	ataaaaaacat	agaatgaaga	aaacgctttt	420
gctcgctgcg	gtagttgttt	gagcagtttc	gtcgtacaag	ctcaacagaa	gagtgcagac	480
gttgtagaga	tcagttcact	actattaaag	aagtgccaat	tacgccggtg	aaagatcagc	540
caactcaggt	acatgctggt	catactctgc	attaggattc	ctcgaaagga	aatcctccgt	600
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cgatgtttct	tatgtgtgaa	gcactacggc	gtcgttccac	agtctgtcat	gcagggcttg	780
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atcatcgaca	gctacctcgg	cacatgtcct	gaactttcac	ttatgaaggt	aagacctaca	960
cgccgaagag	ctttgctcag	atctcgtct	taatgtcgat	gactatgtgt	cgctgacttc	1020
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ggcgatttgg	ccgacgtaga	aggtaggaag	ccaaagggtc	ggatcaggat	cgttgggtag	1260
gattgagccg	tgccagaagc	aggcagagat	cattcgtacg	gttaatagt	ccgattgtcc	1320
tgaatcaacc	ccactcaaga	gttccgtcag	aaaggttacg	atgagtatag	cccaccgatg	1380
accacggtat	ggttatctac	ggtatcgcca	agaatcagaa	tga		1423

(2) INFORMATION FOR SEQ ID NO:1203

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 982 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...982

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1203

tttaacttcc	tacagaaaat	taaagatgct	attttgtgtg	atatcctcat	attgacgagc	60
cagagtcttc	gtttgataat	atctttttga	aaaacgaata	aacaagttta	tcaaggaaat	120
ggctgaaaaat	atgccggtga	ttattttcacg	cataataaca	caataggaag	ttcaataaag	180
cctgattaca	ttcttttact	gaaaaaaaga	tggaggcaga	tggagctcat	ttcaagattt	240
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ggatttttga	cagatgcata	tgatgaagca	ttgctcccaa	atccagcgca	caaaattatt	540
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agtgaggaat	atatataaaa	aggcatatga	taagtatgtg	cagagtagtt	ttattgcatt	660
ttttctgaat	ctggacttat	cgcttagttt	ataggtatcc	agcagttttc	tacaacaatc	720
ttgcaatctc	acctttgtct	ttttccttct	ggtaaaaacg	aaagtatctg	ttcagctatc	780
ggagtggcgg	aatcaggcac	tcaacctctg	ttctctgtat	ggagccggtg	caaacgagga	840
acagtttgtt	gtcggcgggg	tcctctgaag	gattgtaaat	acgggtcccg	tggattctct	900
caaaactact	agtagatcct	tccaaaacca	cagtggattt	cctcaaaacc	actagtagat	960
tttctcgaaa	ctactagtag	tt				982

(2) INFORMATION FOR SEQ ID NO:1204

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1608 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1204

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aacgtttaaa tttcgccctt ttgggcgtga acacccatta cctcattggg aatagattca      60
gtttgatcgt atcgagaaaa tcaagagcat tcggattcga ttttccagta tctcctgtat      120
ggtactgagc catttctcca gctccgatct tcctccacgt tgtctccctt gtatttccag      180
tgggcagcaa atccttctct gctatgtcgt ccacccctcg gctacggatt tggacttcta      240
cccaccgcca tccggtccca tgaccgtcag gtggagtgcg tggtatccgt tgctttagga      300
ttgctgaccc agtcgcgaat acggtcggga cgattgcgat ataatccgtg atggccgaat      360
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cgcaaaaagg tcgtaaatct ctcgaaagga actcctttct tttccatttt cttccaaatg      480
gaatagacgg tttgaccctc gccttcatct cataggacat gtccataacc gcaaaccgtg      540
tttgagcggg gccgcaaaaat gctcgaaacat ctctaaacga tgctgctcgt gatgcggatt      600
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tggcaccggc atgagcatcc ttggccaagt ggaaagcctt gtcgatcttt ccacttttgc      1140
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ccatgccaaa taatttgaca cgccccctc ttattgtata tgtgttgatc gaattagatt      1500
gtctctttca gatcagtgtt ctgtttgatg atctccatac cagctggat ggcttgctcg      1560
ttcatcggat gagtttgtgg tgacgttcgg gcagtgtctt cttcagac      1608

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(2) INFORMATION FOR SEQ ID NO:1205

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4002 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
(B) LOCATION 1...4002

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1205

tccgctcggg	accagaaat	atcgaccatc	agttcggaa	ggagctgcag	cgtccactt	60
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cgttcgatag	cctcttgccg	aagcctttgg	tgcgcagctc	gtcgttcacc	ttgtcgaggc	240
cgatctgtcg	agtttgtcta	tcgccaccgt	aatgtccgtc	agcctgtcgg	cttctctacc	300
acttcggcga	taccggagag	gatcttgccg	ttgttcagca	ggaacgagtc	ctgataccca	360
atctgcgaaa	gacttcgctg	atgatctgga	tggttctacc	tcattcatga	gcgaatccga	420
gccgatgacg	tctccatcgc	atggtaaaa	tcgcgatagc	gacccttctg	cggctctatcg	480
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caccacgtag	cgagagagc	gaactgtcag	gtcgtatcga	agcccttttc	acaagctttg	600
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cgccggagtt	gagcaccttg	aagagcggcg	gtctccctcc	tctccgtact	tgcccatcag	720
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tcgctatggt	gtcgaatatg	tagttgcgcc	ggctcatttc	gaccggactg	aaacgcgcac	840
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actccctatt	atacaatgaa	ttaacaaaaca	aaatacaact	aattgccgtg	caaaggtctc	3600
cttaaagaga	ccacggtttc	ttttcgacat	aaaaaagaag	gcgatccaga	acatctgttc	3660
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tatatccacc	gggacgatct	caatcttagc	agcaacatct	ccgaaaagtc	cttcaggcat	3960
atttattctt	aagtaagaga	aggcgattcg	gcgagagtgc	gt		4002

(2) INFORMATION FOR SEQ ID NO:1206

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3499 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3499

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1206

gtacccgcaa	ttacatcaag	ctattgctgt	gacccatttt	gccatttgac	gtaataaagt	60
tatttttgtc	tcgcaaattg	atttgctatg	aaaggaatat	ccttgccgga	ggatccggca	120
ctcgtctata	tccgataact	cggggtggag	caaacagctt	ctacccgttt	atgacaagcc	180
gatgatttac	taccggtttc	tacgcttatg	cttgcggtga	ttcgggatgt	cctgatcatt	240
tccacccgca	ggacttatcc	atgttccaac	ggctattggg	tgatggccgt	gatccggtgt	300
ccggttggag	tatgcagagc	aaccctcccc	cgatggattg	gcaaggcttt	catcatcgga	360
cgtgaatttg	taggagacga	ttgtgcctgt	ctgtcttagg	agataatatc	ttctacgggc	420
atggcttcag	ccaaatgctt	cgtcggcagt	tgccgatgcg	gaaaagggtg	tggccaccat	480
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gctttttggc	aaatttgtca	tcgtttccga	atcaatcaac	caaacaaatc	acaataaaca	3480
ggaatcaaaa	aatgaagac					3499

(2) INFORMATION FOR SEQ ID NO:1207

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 602 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...602
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1207

tctcagcgcg	ggattgtttc	aaccgcagga	gcttcctctt	ctactgcaga	gtctccatag	60
ctaccgaagt	ggccgaatca	gccgctgcat	cttgagcgaa	gcctgagtca	tgaagcctac	120
tgacataaag	gccacacatg	caattgtgca	aataactttt	tcacgcgcag	tcttttgttt	180
agattagtag	ttttcgtttc	ttttattttg	ttccttaata	atcttctgcg	cggagagagc	240
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ggagcacatt	ttcagttgga	atacttaaat	cggacgaata	atttttccct	cttgaaacta	540
aaaccgaaaa	aacggcatgc	atttcggggc	gttttttcag	ccaaaataac	ggatccagtc	600
ca						602

(2) INFORMATION FOR SEQ ID NO:1208

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1397 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1397

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1208

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ccccgatctt	tcgggtggagt	acaagtccctg	tttatcgagg	tcttatgcag	cttcgcgcgg	120
tagtcaaacc	gcatgaatgg	gagctaagtc	agcaatctat	caaggcggtt	tcttttttca	180
ttccatgggtg	attcgtagca	tccgcgggta	ttcctcgaac	tggaaaccat	ataccggcag	240
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tttcaacacg	ccgccataga	tctggaaggt	gtcttcgttc	ccggtcaggc	ctagtagccc	840
tgtcacgtat	gacgggccct	gaaggaatga	tactgctctc	cctcccgatc	tcggtgggtt	900
ggaaactccc	caagaactgg	tcgaatatgc	aagacgaagc	ccgacgaaaa	agaactccgg	960
acttctttgc	aggaaaaacag	cttatctatt	ggaagcagca	atccgacgag	gctttcgact	1020
ggcagagctg	ttgaatatat	ggcacaaaca	cagtctcagc	tatcgggagg	agagcgagtg	1080
agcagcaaaa	gccattacag	cgatagagca	gccgaacaat	cggccaaata	gatgcgatca	1140
cggaagtagc	cggacgtttt	cgccggcaac	ttgcgcctt	tgggggcagt	ctccgcttgg	1200
attcgtgtcc	gtcaaagagc	gaatcacaaa	gccgtggact	atttctgtcc	acaactttct	1260
gccatagcag	gcgactttcc	tccacgatcc	aagaagtcgg	aatgctgaaa	aaagccaaac	1320
agttgcgaaa	gaactgtctg	agctacagga	caatcttcac	accgccgtgt	acgcctgctt	1380
cgcttacgag	ccgtttt					1397

(2) INFORMATION FOR SEQ ID NO:1209

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 899 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...899

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1209

ttttgctccg	gataatgatt	aggagtggca	gagtcgcgtc	ctgatatttt	aattcataga	60
taatacgacg	ttgagtaact	aaccaataag	atcgccgat	actctggact	gtcttcattg	120
ccggttgggc	tggtatcggc	atcctgtcct	gtttattgct	accggtatga	tcggctatat	180
gccgcctatc	gagcattgca	gaatcccatt	gacaagtatg	catgcgcagc	tatatctgcc	240
gatggaaggt	gttcggttct	tatgcccaca	gcggtgacaa	tcggatatat	accaatacaa	300
cgagatttca	cccgatctga	tcaaggctct	catcgctacg	gagatgtccg	cttcgctaag	360

cattcgggaa	tagacagcaa	aggctctgttc	cggccgtggt	caaacgcggt	atcctcaatc	420
aaaaaagcgg	tggagggggg	ataccattac	ccagcaactg	gccaaaactcc	tttattcgcc	480
gcgcacggag	ccaaaactcg	acgcctcttc	caaaaaccga	tcgagtgggt	tatcgccgta	540
agctggagcg	tttttatacg	aaggaagaga	tcatcaccat	gtatctcact	acttcgactt	600
cctgtacaat	gccgttggga	tcaagtctgc	ggcttatcct	acttcggtaa	gcagccggct	660
gatttgaaga	tagaggaggc	agccgtctgg	tcggtatgtg	caagaatccg	gcctattata	720
atcccgtttt	gcatgggaga	cagaacgttg	ccgaggacgc	cgcaatatcg	ttctggagca	780
gatgacaagg	ccaaatatat	cactaaagca	gaatgcgatt	ctctccaaaa	gctccgttgg	840
tcacatcttt	tcatcggatt	acgcacgcgc	atggcggaagc	tcttatttca	gggagcgctc	899

(2) INFORMATION FOR SEQ ID NO:1210

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2483 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2483

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1210

cctagtattt	cggcacattc	tgtaaggatc	ggtatatcct	ccgtatagac	cgcttaacag	60
caggggtgccg	ccattaccga	gtcgggatct	gtatgcagca	tatcgtccag	cagaatatta	120
cggttgatgt	ttgcgataat	cagatcgaca	tcggacagtc	ggcaagaaga	gatgcgtcac	180
ctatgcgaac	atcaattccc	gaatatcatt	gagagctgca	ttctcgcccg	tggtgcgtat	240
gcaccgtcgt	ctatgtcgat	agctgtgaca	gaagaggctc	ccaatttgcg	agctagatgg	300
caaggattcc	cgtaccgcaa	cccattgtcca	gaactctcaa	gcccgcgaat	ccatatcgag	360
aagatagctc	atcatcagcg	aagtggcttc	atgtgtcctg	ttccaaaggc	catttgagga	420
gaaataatca	gctcgagcgg	ttatccggat	cggtcggatg	gaagggtgct	cttacaaggc	480
atthgtcttc	atccgaatgg	ggcggaagaa	gttcttttcc	cactgttcgt	tccagttgaa	540
tccggttgga	tctcggatga	gtattgccac	agaagccccg	gcagtggaa	tgctccaata	600
gcgcaggaat	gtcggatgct	atatcgggtg	agacaggata	taagcacgaa	ggcaagtctc	660
gttttgctcg	aaactctcga	atcctattcg	gcaagttcgg	cactaagcag	gtcgtatgcc	720
gtctccaaa	tcagtcgtcc	ggacgggtgt	tgagttcgaa	tgcgatgctg	atgtatttca	780
ttgcaagagg	gtagaagtgt	gctgtgtagt	ttgattcgtc	tggttgagata	gggagtccac	840
acacgatggc	caagcctttg	agcatggatg	agaggctgat	cgccaccata	cggattccgg	900
tccgaagccc	ataccgataa	gcagcagagc	cgcggaatcc	gcaggagggt	ccccccgata	960
ctgataacgg	ccgggaaaac	gtccgtgccc	tcccgtagaa	caggccttga	gtggctatth	1020
ccagcatcac	agtagctggg	aatagccact	gatgcgcaga	taaatacctc	ccgacagaag	1080
gcttcttttt	ccggtaccac	gagtcggaag	acttcattac	cgaagaaaacg	aaaagcactg	1140
taccagaat	accgaaaatg	gagcagtaga	gtagggataa	cgataggcag	aaaatatacg	1200
tttgccctga	cgggcagcgt	aattagagcc	acgaaagtag	ccagtgcctg	actgaatcct	1260
tgcaagtggt	tccagtgatg	gcttccagtt	gtccgcctgt	tgctcagcgt	gccactccga	1320
tattcctcct	tgctgcgaag	ccagacggcc	aagcatcata	ttgatgatgg	cgagagggag	1380
ttgagagcag	ctacaggcag	gccgatacgc	aagatgcgac	cctatgtata	ttgtccgggtc	1440
ggacgaagaa	cgggaagcaa	tccaacagct	atcctgccgt	ctgagcctgt	aaaagaatag	1500
aacgaatacg	aatacctgac	gatacagctg	gctatggccg	ctccgatcgt	cccccatccc	1560
aaaccgaaat	cagcaaggga	tccagaatca	tattgagtac	caaccccggtg	ctactgactt	1620
gaagggtatg	gagctgagtc	cggctccggt	gtagataccg	ctgaatcggg	ggctgcaaa	1680
gtgaaaggca	ggccgcgatg	cactatgcgc	aggtagtaag	agccaaagcg	tgtacatcgt	1740
cctccaaatg	gtatataccg	aggaaagggtg	tgggaaaagg	aaaaacaaaa	gagcgtcgac	1800
ggaggagatc	agtgggacat	cgaacagttg	tgcgaagcgt	atcgtcgtgc	ttcctcgatg	1860
gccccttgcc	gaggctgtgg	cctatcgtca	cctcactgcc	ggctcttattg	atgacgatag	1920
ggaactggag	agccacgtca	gtaccgccac	aatacctacg	ctgccacgga	cttgctaccc	1980
aaccggccta	accaggccat	atcggtaaac	tataggccat	ctgcacgaag	gaagtaccca	2040

tgatgggcag	agccagtcga	gcagacgtcc	ttttatttcc	ccttctgtga	ggttttgcag	2100
tcggatatac	ccatttcagag	cctttgctgc	attccatcct	tgcgctacca	aggtaactcc	2160
gttccgtctc	gtgccacgag	gaggtgaccg	tcggcctctt	ctgtatatgg	ccgatcaggt	2220
ggatgccctc	tattcgtctga	atatcatcga	gacggtgaga	ggtacggtaa	acaacaattc	2280
gtagtcttca	cccccgttca	gagggctgtg	gagagattca	tattgaactc	ttccgccatg	2340
gctgccgtct	ggagtcgata	ggcaatttgt	cgtcatatat	acggacgccg	acctttcggc	2400
agcgctatat	ggaggaagtt	cgggacgata	gcccgtccga	atgggccatc	tggcaagtcg	2460
gttgatgccg	gccgacgcaa	ctt				2483

(2) INFORMATION FOR SEQ ID NO:1211

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 809 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...809

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1211

tgaaagtggg	ttcgcccatg	gagatgttgt	ccgaagctcc	cacccgcgta	aaatgctgtc	60
caccatgccg	atacgtgcac	tttcggcccg	tacgaaaggc	ctatctgtgc	catcagagag	120
ataagggccg	tctgcctgag	cagggcgact	tgcgctcat	attggggccg	gtgacgatga	180
tgacttgctg	gcggtcgtgt	ccaaataaat	atcgttggcg	atataagggt	catcggccgg	240
tagctctgtt	cgatgacggg	gtggcggccc	gctttgatgt	cgatggtaaa	gctccgtcca	300
ctacagggca	gataaatctg	tagcggcgtg	ccgactcggc	aaagagagga	gacaatccag	360
agaagccacc	gcttgactgt	cctgttggag	agtgccacgt	atcgctgcag	ttcggctaca	420
agcaaggcgt	acagctgtcc	tcgagggtcg	ctattttctc	ttcggctccg	agtatttttg	480
cttcgtactc	ttcagctctt	ccgtaatata	ccgttcggca	ctgacgagtg	tttgcttgcg	540
atccactcgg	ccggtacctt	gtccttgtgc	gtgttgcgga	cttcgataag	tagccgaaca	600
cattgtttata	agctactttg	agactgggta	ttcccgtcgc	tctatctcct	gctgctgtag	660
cttgatcaga	tagtctttgc	cgctgttgcc	agtgcacgca	gttcgtcgag	cgtggcatcg	720
acgccatgtg	cgatgcgggg	ccgcgaccga	gagcggccgg	agcatcgggc	atcacctcac	780
gcaaatcttg	tcgcgtagtt	ccttgcaca				809

(2) INFORMATION FOR SEQ ID NO:1212

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 716 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...716

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1212

agttgatctc	taccaaatat	cgctatcagc	tggcagcttc	tgtaatgctg	gacagagcaa	60
gaatccgatg	caggcagaga	tcgatgctcc	ctgcgagtga	tcgatttctt	gcgtttcggt	120
gcctactatg	cgggccagat	ctatgccatc	aacccatcag	tgagaaaggc	attctcaatc	180
gggtggagta	ccgttcctcg	aaggtttcgt	tttgcccggt	actcctttca	atttcaccag	240
tattgttcca	acctgaatct	ggcacccggc	atgatgggga	atactactat	ctggagcctt	300
ccactacagc	tcttcatagc	aactacctcc	ttatgaaaat	cttcaagagg	ccggtttgcc	360
cgatgggtgtg	gtcaatttcc	ttcccggaca	ggtagcttga	tcggtcgggt	agccacggcg	420
aacgaacact	tggccgggtt	cattttaccg	gttctactgc	tacgttcaac	acgctgtgga	480
agagcatcgc	ggcaatatag	atcgctatcg	tggctatccc	cgtatagtgg	gcgaaacgga	540
ggaaagaact	tcgtgatggg	tcattccctc	gctgaagcat	gcgaagtgc	acggctcttg	600
tgcgcggagc	tttcgagtat	cagggacaaa	agtgttcgct	gcaagtccgc	catatatccc	660
tcgttctttg	tggcccagcg	tgaaagagtg	atgggcgata	tgctcgacag	tatcaa	716

(2) INFORMATION FOR SEQ ID NO:1213

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2134 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2134

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1213

ggcaaggcca	ccactttttc	ctgcgctcatg	atgctcgctt	tcctcttcac	ggagagccta	60
tgctgaactt	cttcggcggtg	gacgtctctt	ccttcggctg	gcaggggcta	tcgtctctct	120
cgtgatggcc	gtggagatga	tattcgggtg	cagatattca	aggacgacgg	gcctgccggc	180
agtgccacca	tcgtacgctg	gtattccctc	tctttgcagg	ggcagcaacc	tttaccacca	240
tcctccgctg	cgtgccgacg	gtatagcgat	gaccaacatt	gccattgcc	tcctatcaac	300
gtggctatga	tctacctcat	gctccgtttc	gtaaacacgc	tgggcgtttc	ttcggtaagg	360
gcggtatata	catcctcgcc	aagttctctg	gttcattctg	cctgccatct	cggtgaagtt	420
cttcaccggc	aatatcgtea	aatcatcgag	acgatgaacg	aagccttgca	gaagtaagcg	480
atgctggact	tgctgccata	gatttcgaga	cggccaatgc	cgagcggacg	agcgtctgcg	540
cgtgggcata	atcgttgtac	gaggtggcca	gatcgtaac	cgttattaag	cctgattcgt	600
cccgaaccgg	actattacaa	ttaccacaat	acacgcgaca	cggactgacc	gctgccgaca	660
ccgagtcggc	acggatcttt	ccggactgtg	ggccgaagtg	gagcctctga	tcgcagggt	720
tccgctcgtg	gcacaaacaa	gccgttcgac	gaagggtgcc	tcaaggcggt	attcaggatg	780
taccaatgga	ctaccccgac	taccattct	tctgcacgct	ccaggcagca	cgcgccaaact	840
gcgacacctc	agcgatcctc	gtctgccac	cgtagcccaa	tgtgtggata	cacattggca	900
caacaccacc	aagccctggc	agatgcagaa	gctgtgccgc	catcgccctg	aagctcttgt	960
agaaaaacttg	ccatgggaaa	ttcatgcccc	tctttatcca	ccgggtgtta	caagcgtttc	1020
cataatataa	atcgtttaate	ttatacaggt	cggaaaaaga	gttcgatcgt	ctgaatattt	1080
ttctaacttt	ggcactctct	caattacatt	tatcatcggg	aacctgatc	gggacataga	1140
agcaaagaaa	accaccttcg	cggacgactg	cataccagtg	gttctttgcy	ctttttccgt	1200
ttgaaatcct	ctcaaatect	tactatgacg	atagccccgt	agcagctgtc	ggaatgccga	1260
ataaaggcat	tttaccctcc	cctattttaca	tttgtaaaag	gctgacaaac	agcctgttac	1320
aactctgcaa	ggcctccatc	gggaagtctc	gcagcgtatc	ggttttgccc	accatatctc	1380
ttttcggagc	atcatcggga	agacgtttgt	ccgcacctga	aaaaaccgcc	gaagacctgc	1440
aaatatcaag	tctccgcact	ttatacttta	aagcctccac	cctttatagt	ataacccttc	1500
agggttttat	agtattaccc	cccacgcttc	gtatcgggag	gcattttcgcc	cttcaaattct	1560
caagccttcg	gccttcgtgg	tacctcccg	gagattttcc	ccgtggttgc	acatcgatg	1620

gctcaagaaa	aagaacaacg	cgagaataat	caccataatt	cacttaccaa	acaaaaaaaa	1680
aacgaaatgc	tgaccctgtc	agtcaagagc	cgtctatgaa	gatcgggcaa	gcacaaggac	1740
ta-yaccatgt	actatgccca	agtgacaaac	cccagagtaat	cgagtacgag	gacgtcatca	1800
aagacattgc	cgaatgtcct	ccctgaccac	aggcgatgtg	cgcaacgcca	tcgaccgact	1860
cgctactacc	tccagcgcca	actcaccgag	ggcaataccg	tcagactcgg	aagatcggca	1920
ccttcgcgct	gtccgttctt	tccaagtatg	tggaaacgga	aaagagggtga	atgcctccat	1980
cctcaaaaag	cccagaatcc	gtttctatac	aataacacgc	tctcagccgt	agctgacaat	2040
atccgtttgg	ctgtctacgc	aacggtcaga	aagtagatga	caccacctct	ccctccactc	2100
cgagcgaggc	ggcggcggaac	aaaccggcgg	aagc			2134

(2) INFORMATION FOR SEQ ID NO:1214

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1287 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1287

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1214

agggggataa	ggaagatgat	gcaccagagg	tttacaacct	tgggatgtat	tcgactatac	60
atcggggtttg	cctgttatcc	ccggctcttc	tatcaaagga	tgctacgctc	tgccatcgaa	120
gagtgggact	tccttgacga	ttatgagtca	acaatggagt	tacacgtgaa	gaaattattg	180
agaaagtatt	tgtaggaaaag	aatattccat	ttatgacaga	gacattttcc	tcgatgccat	240
tcctaaagag	tagataaacac	tctctttgga	gaggactata	tcacgcacca	tcctatcctc	300
tgcaaaaacc	taatcctgta	cgttttttga	gggttgaacc	agggtaacct	atcagtttcg	360
ctttatcctg	aaagatcatg	gagagaaact	aaggtagact	ttaggacaaa	gctcttcaaa	420
gctattatct	gcacttttgg	ttcggggcca	agaccaatgt	cggctacggg	caattttag	480
aaccttagaa	tagaattacg	caggttacct	ctccattggg	tcgtttttcc	tcagcaaagg	540
ttttgtatgc	cactctccac	agattcgttg	ccgatctttt	tatcggactc	accgcctacc	600
attttagcgt	tcgttttcaga	gccgaacgtg	ctatcgcttc	gaacgcaaat	ggtatttcat	660
gcctcggttt	gcattgggca	atgccccaaa	aatagtgaac	aatacgctta	cctctatggg	720
cagatattca	agccaaagag	gaagacacgg	acgaaagcaa	gggaccgggc	aacacctcgc	780
gcctatcatt	cgagccgaca	aaccctctcg	gaagtctctg	gaggcaggcg	aagcatggat	840
ctgtatatta	ccgtcgtaac	gagagatcct	ctgctggctg	gaacttcctc	tctttccttc	900
cggaatggca	agcgtacaac	ttctttcggg	aaatgatctc	acatacgact	cctaccgctt	960
gtacaattccc	acgacacaga	atacagatcc	gggctaaggg	tagaggatgc	ggcacttacg	1020
gtagacttct	ttctcggcaa	gcaatccgtt	ggggtgaaat	cctctctgta	cgctttcttc	1080
tccggccagt	atcaaggtag	atcaaatact	gtccgccgaa	ataccctctc	gcgtctcatg	1140
aatagactct	cacggcgtct	gtatgagcta	tatacgaata	cctgagcagg	ggagagacat	1200
ctgtggagcg	atatattttc	cccgacatga	tgggctgatt	tactcccaga	taagtatgcc	1260
acgcaaggcg	actacaagga	aaacaga				1287

(2) INFORMATION FOR SEQ ID NO:1215

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2384 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2384

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1215

ccttggtcga	tgtagcggta	gtacatatcg	gtgaaagtct	ggcaagtgcc	ggattttccc	60
gctccttttc	ttcttcggtc	tttctcttgc	gaattatacc	atgggtgctg	atttttggat	120
tatgtggcgt	ttagaggccg	atthagacat	aatatcctgc	cggagggcgt	ccaccaagct	180
gctggctcct	atgcggaata	tgccggcgta	agccattctt	tgcccaaaag	cgtttcgata	240
agacatagta	tttcacagca	tcttcagttg	tgcgaatgcc	tccggacagt	ttgaaccacg	300
tacttcgcca	aaaagtccgt	agtactgttt	cagcaccttg	cactcgtata	ggctgcttca	360
aggctcgctc	cggggtagcc	tttgccctgtg	gagtcctttc	aaaatgtgca	ccgcagaaaa	420
gggagagaa	cgtagcgcca	cgatattctc	cgggtgtttc	aatgcgcctg	tctccagtat	480
cactttgacg	tagctccctt	tgctgctgct	atttgctctt	cgattttcgt	ggccgctgct	540
catagtcccc	acttaggaac	ttacccatat	tgagtactat	gtctatattt	ctgctccatc	600
gcttacggcc	agtgccgttt	cggccaactt	aacttcgtaa	agctctgtga	agcggggaaa	660
cagccactga	cgctggccac	tttcactttt	cggctgtgag	cgtttctctc	acgggtggaga	720
cgaagttggg	gtatagcaga	tcgccgctac	ggatggaaatc	gtgggatctg	tgtcctcgaa	780
gtcatgacgc	tctcggtaaa	ctttgtgatg	gactcctccg	aatccgtggc	gttaggttgg	840
tcagatcgat	gacgccatgc	aggaatttct	tcgtttccgg	aggtcgaatc	gtgaatagtg	900
atcccgtatt	atttgatcgg	ttttcagtaa	attctctctt	ctgactcggc	cggatcgaac	960
tgagcgaagg	ccattttcgta	ttattttgctg	ccattgttgt	gtagtttctg	attttgttga	1020
tgtctttctt	gtctctaacg	gttttcttct	cgatattctt	atggaatgcg	gtggtcagtc	1080
cacaccgggt	tgggttgcca	ggcagagcag	aaccacaga	acatcagcat	ttcgtcggcc	1140
aaatctttgc	tcttgctccg	tttcttcttc	actttgtctc	cgtaccgtcg	tgcgatgata	1200
cgtgctactt	ctcctacctc	ttcggcaagg	atggccatgt	tggttagctc	attgaagtat	1260
ctgataccca	gtgtttaatc	cattggtcga	cactcttttg	tgccctctct	agtgtgatgt	1320
cggcatggct	ctactccttg	ttgtgggtgt	caatcaatat	ggttacccgc	cctcgttcac	1380
caatgcgacc	tgcctctctg	ctccgaatac	gccttgctctg	aagcttttcc	cagttttgcg	1440
gacaagctgt	tgcagaaact	ctcgtagaga	ggatggctat	ctcaggacgg	gaagctttta	1500
tgtagctggg	tctgttccct	tccgggtcga	tcccatgagt	gtaaaattggc	ttacgaccaa	1560
ggcttctcat	tgatgtcttt	gacggaaagg	ttcatcacc	cttcgctgtc	atcgaagtac	1620
gcagggttga	gatctttgga	gttaatagtt	cgatgtcgtc	ctctcctctc	ggtcttctat	1680
gcctacgaga	atcagcactc	cctgacctat	acggcgtgta	atgctcctct	gatgctgacg	1740
gatgcctccg	ttactctttg	tattctactc	tcactgcttt	ttatttcttt	ctgagtcctt	1800
cgtataatag	tttgcttttg	tccggccgat	aagagcacta	agctcttctc	cttctgcgga	1860
gctattcgct	ttacgctttt	gaaatggcgg	agcagatctt	cttttgtttt	ctaccgatgc	1920
ctttgatatt	gtccagttcg	ctctgaattt	gtttcttact	cgtacatcgc	ggtggaaccc	1980
gatcccgaa	cgggtgtgct	cgtcgcgtag	tgttgatatga	ccttgagcgt	ttcgcttttc	2040
ttgtccaaaa	tcagcggacg	gggtccttcg	ggaaaaagat	ttcctccaga	cgttcggcca	2100
atcctatatg	ggatatcttg	cgatgagccc	cagtttatct	aatgtttcgt	acgctggcta	2160
agctgtcctt	tccttccatc	tacgacgac	aggctgggta	gggtagtttc	tcttccgtca	2220
gacgggtgta	atgccgactg	atgatttctc	tcatgaggcg	aagtcgttcg	gcccttcgac	2280
tgttttcacg	tgaacttttc	ggtatccttt	ttgctcgggt	tccccatttt	gaaaacaacg	2340
caggctgcca	cgcactcgta	ccctgtatat	tcgagttgtc	gaag		2384

(2) INFORMATION FOR SEQ ID NO:1216

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2290 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2290

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1216

```

ctcgggtaccc gcccgaggag cgcaaaactg ctgatcagcg tagcgggcttg acgatattac      60
gggtcagacc gacttccttg ggggtaagaa attcgggtgta ataaggaaag tggtcaggaa      120
gccgatgaaa gcacctgcat agctgacagg gtccctttga tactctggcg ttcgacaatc      180
cccatagctc gtcccgcgga aattacaagg cctgagcaag cagcgtggcc acaagcatat      240
agatctcatc ccgatgaggt cgttcgtaat ggtgataaag gggccgggtg ctatgccggg      300
tctatcttca atcgatccag cagcatcggt accatggtgc cgatatgctg gcgaacaata      360
cgacggaaaa gaggtgatg gagacggcag actgacgagg acgtcaccga ggaaaaagta      420
gttgaacagg aagacgacaa gctgatgata gaggcattga tcagggctac gacgacttcc      480
ttggctatga actccagagt ttggcctgct tcagactatt gtttgccagc ccctgtaccc      540
gatggccgaa gactggatgc ccacattgcc gctgtgccc ccaatgaggg aatgaagagg      600
gccactcttg gattggcggc aaagagggaa tcgaatctcc caagaggatg gagttggcca      660
atccctccgc catgccgatg agaagcacgg caggcgtgct gcggtctgca tatagacctt      720
atccgatgct tctattcttg cgaaataccc gatgcaagct gatagtcgcg ctctgtctgt      780
tcgcaatttc gtcgatcaca tcgtcgatag tgatccggcc taccaaacga ccgtactgtc      840
cactaccggc agagccacga ggtcgtactt ctctatcttc tcgcgacttc ttcgatcggg      900
tcattgtctt tgacggaaat aggtcggtc tcatcacata cttgatcttg gaagcggaag      960
ggctggtgat cagtttcttc gcggcagcac tcctttgagc cgttcttcat cgtcgatgac      1020
atagacgtat atatctcgtc cacatcctct gectgcatac gcatctcttc gatacactgg      1080
gcatactcca gttctcattg acgattatca tctcggtaac catgaggtac cggctgtatc      1140
gtcttcgtac ttgagcagat cgataatatc tccggctgct ctatatcggt cacctgactg      1200
agaatctcgt cttgctggtc ttcgtcagct cacgaatcag ctcgcccgca tcgtcggctc      1260
ccatgttgcc gacaattttc cggcgatggt ctcggaagga atcctttcga ggaccttggt      1320
tcgtcatctt catccagctc caagagtacg agaccggcct tttctccatc gacaggaggt      1380
agaggtagac agcctcgtcc agatccagct cgtcatagag accgcaatat cctcgggggtg      1440
gagcttgctc atcaggtcga gagcatctgc tcgcgctttt ggtcgatgat ctcgcaaga      1500
ttgtgaagat attctttcgg aagtccataa gaattcggtt atcagggggg atgaaaatgc      1560
tattgctgaa caggagtgtg agtgcgatga aatcatccgg agacaactgc tccggtcctt      1620
cgagaaaacg ggttcgtcga aacgatcaaa accggccggc aagatacgcg aagagagttc      1680
ctaagcgttt tccgacgctg tccgaaagct gttttaccac tgttttcaag gctttctcgc      1740
tacatggaag ttccttgagg tcatgcgtgt cagacgtatt acaccgctct g'actttggg      1800
cgggggggtcg aaacggaagc gtctacgggtg aagaggtatt cgatattgta ocaaagctgc      1860
aaaacacgct caatatgccg taatcttttt tcccgggagg cgatgcaagt ccatagccac      1920
ttcgcgctgc agcatccccg aacaacaggg aatctgctcg gaacgtccaa caggcggaag      1980
aaaatctggc tggagatatt gtagggatat tgcctatcag gcagtattgt cgtcctccgg      2040
ggaacagctc cgacaaagat agtgacagaa atcgccctct atgatccgat cggaaagtgc      2100
gggaaacctt ctgcgaaata gctgacggac tcaccgtcga tctctatgac gcgaactcat      2160
gccccttgcg aagtaagaac tgcgtaagca ctccatacc cggccgatct ccagtacagg      2220
caatgcttta tgctcgaaa ggggtgcggc tattgctctg caatactcag atcgcaagg      2280
aagtgttgcc

```

(2) INFORMATION FOR SEQ ID NO:1217

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1059 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1059

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1217

```

gctcaagacc cctcgaatgg catattcggg cagcttggtg ttgtccacat gtccacatac      60
aggctgctga tagcatcac agccgtttcc agcttacgag ggccctcttc atactactac      120
tgagtttc-g tgcagatgcc gaacagccag taggagcagg agtataatcg atttgcttgc      180
tttattcatt ttttacaat ctttcttatt tcagcgtcca aagatagcac accttagcac      240
aaacgaaagt ctatgaccgc gagcttcgcg ttggtattta tacacctcaa tacactaatt      300
ccgaaacggc aatccatttc tcgtctattc attataatttt tgtactggtt tacatttttga      360
ggagacaatc aacacaatta aataactaaa aagaaagagt atgaaaagaa tgctgctgct      420
tctcgttgta ttattatatg gattgcaggc cgattggctg cacaagacgt tatcagacca      480
tggtcattgc ggtcggagcg ggatactccg atacggagaa catcccggga ggattcacca      540
tggtttctat ttgggaaagc gtatggggag ctttctggaa gtggggcttc catgtacaac      600
tccacacgtc aaacagccaa caatgcagac tcctttgatc gaacgaagga gacggatctt      660
ttcaggtaaa tatgtcttct ccgaatagaa gtgggtcattc ttcgatgcag gcagtgcgaa      720
ctgctatatg atcgtgtcgg agtcaatcct ctccatctgt tttggcagaa tagccggcac      780
aattgtttct gccagtacaa gccggcctgt ccaataagca caatattcat ttctctatgg      840
agacaaggga gccaaagtca gtatctacac caattcgaat actacatcgg ttacggagca      900
cgtgtagcct acgaatatca aattcataaa acgtgggggc ggggtgccgct gtaatgtacg      960
accacggcaa taagatgctt cggccatggc cagcgtctcc actcattttt agttgccaaa     1020
gctcaatcga catcgtctcg aaatccgagc ttttcgtaa                               1059

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(2) INFORMATION FOR SEQ ID NO:1218

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 779 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...779

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1218

```

caagtaaacg aaacgggtcgg gatcgagaac ctgatttcgg tgccttacac acaggatcgg      60
aacttgcatc caacctcaat tctcacatca aggccaatcg atctccctct tcgaggcccg      120
aaccgtgtcg tccatcacac aacaagaggt atatcccggt tggaaagtgc ttccggagaa      180
gtcttcacgg ctccggtctt atcatggcta cgggtgcttc atggcgcaag ctcggtgtac      240
ccggcagaaa gaatatacgg gtaatgggtg agcctactgc gctcactgcg atggcctttc      300
ttcaaaggca agcgtgtggc cgtgggtcgg ggaggcaact ccgtctggaa gctgccatcg      360
atttggccgg tatatgcgag catgtcactg tatagagttt ctggatgtgc tcagggtgta      420
tgaggtgctt caaaagaaa ccgtagaaac gncaatatcg acatccctct cagtactgct      480
accaaagaaa catgggcaac ggacagaaag tggagggaat actgcttacc gatcgcaacc      540
gggagaggaa aagcaaatcg cactcagtgg cgtattcgta cagatcggct tgccgccaat      600
acatcccttg tgaagattt ggtggaaaca aacagccagg cgaagtactc atcgatactt      660
catgccgtac caatacgccc ggcataatgc tgcaggtgac tgtaccactg tgccctacaa      720
acagatagtc attgcatggg cgaaggagcc aaagctgctc tttctgcttt tcgaggatc      779

```

(2) INFORMATION FOR SEQ ID NO:1219

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 409 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...409

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1219

aacatttacc tcaactgcaa cagtggattg ttctgtctat atatggagga tactaatatt	60
tctcacaaca ttagaaattg caaaaactta taacctcgaa tactaaccct taaaagagta	120
aaaagatgaa aaagttatcg ttacagatat tggactattt ttcgctgctg ctgttctgat	180
ggtattttctg acagggggcga aaaccggttt gacttggagg acattccgca agaagcggaa	240
atccgacacg ctccggccata ggcgagacgg ataacggcag agaatacctg ggcctaattt	300
ttacctgaca agttcggatg aagtggtttc ggacagtcga tccgagcaga aaggaaaatg	360
ctggcccgtg catttaacat tcagaccggt cttgggagca attgcttag	409

(2) INFORMATION FOR SEQ ID NO:1220

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 862 base pairs;

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...862

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1220

ttggttccgt ttttcccgaa aagcggtttg agtttttccc gaaaaatggt cgtaattttg	60
tttcttctat tcttctctct ttccggacgg ttccgaggaga gaggaagatc tttactcctt	120
gctttggatt ctatcgatct cgattatgga ttttcgttct tttacattgt attctatatc	180
aataagaaat gctatcttgc ggtcgatatt cctatgtatg gtcataaaag tgaccggaat	240
atgtggtcca ccatacgggg ctaacaagtt tagtagaaag aaagtaatgt acgtatcgta	300
gacattcagg gacagcagat gaaggtagaa caaggccgtc ggcgttcgtg catcacatca	360
aagatgtaga gagtggtgca agcgtagaat tcacaagggt ctccctcgtcg ataataatgg	420
tgctatcacc gtgggttctc cctggtagaa ggcgctaagg tggtatgtga agtattgact	480
cctcttgtga aggggataag gtgctgatct tccacaagaa gagaagaaaa ggataccgca	540
gctgaatggc catcgccagc agtttacgga aattctgggtg aaagaagtgt tgcataatca	600
aatcccaaaa cagaaacaca atcatggcac ataaaaaggt gtaggtagtt ccaagaacgg	660
tcgtgaatcg gaaagcaaac gtcttgctg aaagtttatg gtggagaaat ggctaaggcc	720
ggcaacatat tggttgtcag cgtggcaccg ttcaccaccc ggtgaaaacg taggtatcgg	780
taggatcata ctttgtatgc actgaagtcg gcgtggtagt attactcgca gaaacgaccg	840
tcatacgttc gatcagaccg at	862

(2) INFORMATION FOR SEQ ID NO:1221

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 759 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...759
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1221

tttgatttga	ttcatgaaaa	ttagtcagat	ttgtcatgca	aatcttatga	acaattcaat	60
agcttgtttt	tcttccttag	tttcaaactc	attaggataa	gaaagcatag	taatttagaa	120
tcatgtaggt	cttttggaac	tacaatttct	tttttatatc	tgtactcatt	ctttattatt	180
ttacataaat	tgctttacaa	aaagcaccgc	atattctcac	cgggtgttaa	ctacaaaatt	240
ctcaatgtag	atagcataaa	atctattcat	aatggagttt	ttgtggtaaa	ggtaggaatt	300
acaacttatt	tctttgggtt	tccttttctt	tcttttcaga	gaaatgagta	ccatgttgaa	360
ctaactgtat	gttaaaagct	agtgaagcct	aaatacatga	gtttgggata	ggaaaagtct	420
tataaaagtt	agtaatcaca	gaatatTTTg	catgcttgat	gagtttagca	agaattttga	480
tgcggaatg	aacatcattc	gcttcctacc	ggtttcccaa	aggctcgag	acgtcgtaag	540
tctcacttag	tgacagtgag	attatgacta	ttttgccggt	gtttcattcg	gaacctttgc	600
taatttcaaa	catgattatt	tgcatttcat	caaagtgatt	tgcactccga	gttcccttcg	660
gctgtgtcgt	acaatcgctt	tgtggacttg	aaagccgcgt	gttctttcaa	actcatgctc	720
tttcttaaac	tctatccctt	tgggaaaaat	gtaccgggc			759

(2) INFORMATION FOR SEQ ID NO:1222

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 554 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...554
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1222

cgttgtgtg	gcaagagcac	gtgatgctta	tgctaaagga	gatacaattt	ttttaacagc	60
aagaattaca	cactggggaa	tgaacgtaat	cttggggagt	agtaaaaaag	atgcctggca	120
tgggaagttt	gaccagacag	gaaatattca	tatcaaggaa	agaaaattgg	aaaggtcttg	180
gttgacgggc	aggatattta	tcctcttctt	ccggtgttgc	catgaatacg	cttccctctg	240
attttccaat	tcgatagaat	tgctttcgaa	ttatacggat	ggtgatattg	cccagctttc	300
aaggcataag	aacaattagc	cctcaatctg	aagtccaata	aaaagtgtgt	ttaagcgggt	360
cttttgaagg	cggangcggc	ctgaaagaca	aattatcagc	aaagcatctt	tgattacagt	420

cttaccaaaa	atatctgcc	gaccatcatt	aacgccaata	atacaggtga	ggctgttttt	480
tcgattcaag	ttatatgtcg	aatatcatag	actttgaatc	gatccgaagt	ggagcttcac	540
gcagacatct	ttaa					554

(2) INFORMATION FOR SEQ ID NO:1223

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2392 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2392

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1223

tgctttcgat	acagccccc	gcaaactgtg	gtaaacctca	tgcggatcac	gccgtgtagc	60
gaagcatccg	tgatgccgtg	caaagctgca	gcctcgggga	taccggttcg	tcggtagaca	120
gccggcaaac	gacttctctt	atacatcgaa	acgaaagtcc	agcagctgcc	aaccaaccga	180
tacgggtgcc	ggtgcactac	tccggaaata	aactgcgttt	catcggcagg	caatccggtc	240
gtctcgtatc	gataacgaga	aaacaaggca	ggctatccac	agcggcaggc	acagcaccaa	300
caaagacgag	gcacgcggat	cgataatccc	cttgcgacgg	aatgatccga	agagccttct	360
ggcggcaggt	tgtcggcctg	ccatggatct	ttggtttcca	taacgtcata	aaagccatgc	420
ctgcaatcag	cacaagcagg	gcacagccat	ccacagcgtc	atcgagtaat	cttttttctc	480
ttatcgaaga	aaactttcgg	tgcggtgcga	tggcttccct	gaccgatccg	gtcggcacia	540
ttgccaatcg	cagacagaag	gcactttctac	ccctaccctg	cggcgcacta	gcgaatcaga	600
gcttgccgaa	tatccacggc	tgtagagttc	ttgagacaga	atgcaattct	tcgggtgcaa	660
taccggctcc	ttccgtcctc	agtcgcggcc	accatttggt	cgataagaat	tgaggggccac	720
cgtgtatata	ctatcagtag	aaaggycttg	tataccctct	ggcgggacat	cttgtccctc	780
actccgtgat	gagcaccttc	tcccctatcg	gttttggtcac	gtctacggta	taggcagttc	840
tcccgcgcga	ctgtaattaa	aggaaggata	catcgttttg	aacggtcgga	agcaacgaca	900
tcctttttca	gcaggatgag	atgaccattc	tccgagtcgg	atccgccacc	catcgggat	960
aggaaaactc	caaatagtca	atatttcgcg	gcctgtcatt	tgcacgtgac	aaagaaaatt	1020
ctcgtacggg	agatggcgaa	catgtggtac	atatagatcg	aatccgcggg	caaatccgat	1080
tgatggagag	aggagctgca	aatgatatat	ccgcgcggga	ctcgctcgca	tcacatgatg	1140
aatcagatcc	atgaaaggag	acgggcccga	acgagctctg	cagaacttat	ttcgggtggaa	1200
gaaacacaca	taggctcgtt	cacaaccggc	gaacggcagc	ttcatcgagg	gagaaatgcg	1260
ccataaaggc	tgaacgggag	taagccgcga	tatgtccgtc	aagccacctt	ccactctttt	1320
atgagtacct	tgtctccttt	gcgagcgaga	ctgagtcgca	catcggacac	ttgtccaaat	1380
gattggccgg	attcagtagc	agaacggagt	cggcttctgc	tctttcaccc	tcgggtctga	1440
ctcctgatga	tcatgtccca	gcaatagtag	tctatgctgc	ccacttcacg	agcgagagtc	1500
ataccggcat	cttcgagatg	ttcgaattgt	cattctccct	gccggaatgc	agtacgcata	1560
caacaaaaca	ggtttttcct	tttggtatcac	aaacggtaac	cagtacttgg	ccgattcatt	1620
atatcgctga	atcgcatctc	cgtccacaga	ctttgcggca	gccactagga	atagctggag	1680
ttataaagcc	caacagagcc	accctcagcc	cgttcgatcg	aagaccttat	aaggagccca	1740
atatggcttg	ccggtctcgg	tgtcatagcg	ttcgccggca	agaaaggga	gtcgcagccg	1800
gctaccattt	tgtatagacg	gcattggccg	tctcgatgtc	gtgattgccc	ggtatggcgg	1860
cgcatagcgc	aagtagttca	tcgcacggga	gaagagatga	gtaccgcgtc	ttccatgtag	1920
ttataatagt	aggccgtagg	atcgccctgc	aatacgtcgc	accatcgaag	agcagcaact	1980
ccgatctgtc	cgaccgggca	gctttcagaa	ggaagccaag	cgcgacattc	cacccgaagt	2040
cggctctaaa	gctttgaatc	agtggggga	acattcccgt	gaagatccgt	agtgtggata	2100
atacgaacga	atgctcctgc	ctgcttgccac	atccaccgag	gagaaacgtc	gccagcgaag	2160
caggacggac	agcaaacccga	aaagtctctt	cttcataacc	tgcaactgta	gtatttcctaa	2220
aagtcctatt	cacctgacta	cctgcagcaa	cttcgcgcgc	ggcataatga	ccctgagcga	2280
accatccgca	tcctctgcgc	aaaaatcatg	ccctcggact	cgataacctt	cagcttgccg	2340
ggcggcaaat	tgcgataaag	catacctgct	tgcctaccag	ctcttcggga	gc	2392

(2) INFORMATION FOR SEQ ID NO:1224

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 971 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...971

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1224

```

ggaggctttt tcgttgtagt agggatttat ctgttgttct ttctgatoga tacctttgtc      60
ggcatctgat cagaagatat atcctcggac ggctggccga gaggtactgg aaattgtagc      120
ccgccatcaa agaaaaaaaaa aagaggagaa gggccgacaa ataagtagat ctcaaaatga      180
ttgtcgcgca aaccgaaata gaaatagata tgcgagcata ttacgaactg aagcgtcgtc      240
gagaccatgc gataagggaag cagaacgata ccagaaggac atctttcgct gtttgatcat      300
gtacgcaaca attatggcga catgattttc gaagaagttg agaccatctg atctatcctg      360
gcagccttgg caataagata cttcgcttcc tctcggcaag aagcagatct cttcatccaa      420
gctaatagact ccgacaggcc gccgactctc catctgatcg agcagcttac cgacttcggc      480
cgctcctttgc gatcagtgcc ttgcttggct ttgttaagcg tagcatcggt cgccgtttcg      540
caggcgtcga taatttcccc tattctgtct ttccgggtaa ggaacattta tgtcagcggc      600
tgacaaagcg atataattgt tgtctgcctg aaacaatctc catgaacaca aaagaatatg      660
tgctggactt tatcaaccgc acgaacgtaa ccttttcctt accggcaatg cgggcacagg      720
caaaacgacc ctgctcgcca tatagtccaa cacacattca aaaactgcat agtagccgct      780
cccacggaat agcagcgttg aatgccggtg gggtgacgct gcattcgctt ttaagcttcc      840
gccgggaaca ttcattccgt acgggctatc tctcgaaagt gcacgggcgt aaacttcctt      900
acgccaactt ctttttgga acagacacgt agcatgcttc gaagcgcaaa ttgcttcgaa      960
acatggagnt g                                     971

```

(2) INFORMATION FOR SEQ ID NO:1225

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 421 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...421

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1225

```

atcttctata cttgatatta ttgattacct cctattgtca gataatcccc tatagttgag      60

```

aatattatta	atgaaaatgt	tgaattctat	ggaatgaaat	atttcttgaa	gaaagaagct	120
acatccta	gaggaaggca	cctcattagg	acaaggtag	caagatgtgt	attggaagga	180
gcaagaggaa	tatccttgcc	atacatacag	actcactctg	tgggtgagat	gagaacaatt	240
ctgacaggat	gttttatgtt	cctcagcatg	aaactaaagt	tggtaatcgg	aagtcaatat	300
gaccttcagg	cattttttgc	catttaatta	tctaacagag	gattttattc	atcagcaaac	360
acttattttg	atacggcatt	ttttattaat	cgagttatga	tggtttcctt	gattatgcat	420
t						421

(2) INFORMATION FOR SEQ ID NO:1226

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3048 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3048

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1226

ggcgcaagat	ggctgtacgt	ccgcgaagat	cgctgtctga	cagccgttca	tttcgccata	60
tgcaactttg	atthttgtcca	cgaaaggtht	tacctcttca	agtcacgctg	cgattttgtg	120
ccgaaaagct	tcgacatgaa	ttcggttgat	ccatttatct	attgtatttt	ttgtagctgt	180
tatgatattg	cgggagacc	gcgtaagagc	gaaagactcc	ttctctctct	tcccgaatag	240
tatgtcagag	agccacttcg	ggtaattggc	aggcacgagc	ctctgtcgga	ggactatgcg	300
gaggatatac	gccaaaggtg	gagctatctc	tgctgaagaa	atattcgctg	cactttttgt	360
ccttttatgc	cggttaccac	caagataaaa	gggtgctac	agcattatag	cgtattttgt	420
tgtgatccga	attcgaggat	actcctcttc	tcttctctat	catcctcctt	gtaattgcaa	480
acatacatcc	cagattgccc	caatcggaac	gaacgaacaa	aacgattcgc	ttcttcgtta	540
ttgtctccga	acctatttcg	tgcgccggca	atgcaagtcg	tacaccgcca	tctgtcgggc	600
aaattctgcc	acttctgatt	gaagccgacg	catatcgctt	gtttcttttc	tgccagtttt	660
ttgtccagaa	tcaactgacc	atctgcta	ccaacaccca	ttgtccctgt	ccgtgcagag	720
ccatcaaata	catatgatca	aagctttgca	tcgctttgga	ctgaagtagc	gatgacgctt	780
atggggaata	cgctttcctc	cgggatcgaa	ttattgaagt	ggcctgttcc	actagggcta	840
ttatgcagtt	tgccaagcca	atctttttgt	ccaaagctgt	gacaggcgag	caagttgagc	900
atccaagcca	cggtacgtgt	cgaccatctc	gcctgatgct	cactctgatg	tttggcaggg	960
tatcttctcg	cataataagt	agcgatagca	gattgggctg	tttggcaagt	tccaatcctc	1020
catactcgac	agtcggagag	ccaaagtcgt	gacttcttca	ttgatcggag	cagattgttg	1080
aaaagactga	tggtggaatg	actgaatttg	tgagaaaagg	caacgggtct	ccaccacacg	1140
gcaaagattg	gggcgaggac	ataggagtc	atacaactg	cttatttttag	aagagggaga	1200
gtcggccgag	gagttgaact	tatcgtgtac	caagggaaat	ctttgtagta	ggtagtcgta	1260
gcccacatcg	ccttcgatct	tcgagccaga	atgcaccatt	tccagactga	cctgcagcta	1320
cgatgtctgc	acggcattcg	gtgctatcgc	ataaaccttg	ctccttccat	ccttgcactc	1380
cgtagttcat	cgccgatagt	gccggaagtg	agcttgagag	ggacagatgt	tcagatgtat	1440
aattgcctaa	gaagtttttg	tcttccaaaa	ggataccgac	ttgttctttt	ctctgtcgaa	1500
tacagtactg	cctgtaatat	gtgacgatta	ggataggtgc	cggtatata	acctgcaata	1560
gccgatgctc	gtctacccca	tcgaatccga	agtctacgtt	gctaaaaaca	agtccatctg	1620
cagcagatga	ttaaatccac	ctgtgccata	ttgtgagcgg	caaaacagag	gagatcacct	1680
ctcaacttgg	caatggta	taccaccacc	agcttggtat	aaccgattgc	ccctgtactg	1740
taacattccc	tatagtc	acggcaaaag	ggtcggttaca	agtcgtttca	ccgaacgttc	1800
tttctccatc	tattaccaat	atccagcgag	cggaagcaa	ccatagagca	atgccggcca	1860
caagagcggg	agcactactt	gttgccggca	aaaccatatt	gccaaaccga	taaacttagc	1920
tctgcaaagt	taataaaatg	atagacaaag	cctgctcggt	aaagagcggt	accacagtca	1980
gaggcaaccc	gataagcaga	tgaaggggag	aagcaggaaa	agattgta	tcgggttggt	2040
atgaggatgt	tctgagaaaa	tgacagaatg	aaaataaac	atcccata	ccccataatg	2100
gctaatagat	agagtc	acatagcata	tatccttg	acgaacatcc	caaacactac	2160

tgcaatagaa	actatcagca	aagctataga	agccaataaa	ggtgtggcca	gccctcctcc	2220
gcaggttcca	tactggccgg	cttagccgga	aacctctttt	ggtatccctg	atgagtggcg	2280
ttgatcgacc	attgggatag	agtgagtgg	acgtggtagc	agatccaaca	ttctattcgg	2340
caggaataac	tgtcctccgg	attggcatag	gtatctgttt	tcgccccgag	agccagatcg	2400
agccgaactt	gacccaaggg	gcatcggtac	agcattcatc	gatcagctgt	tccactttct	2460
ctcctcacc	tcatgaggga	tttgcaaggt	agctcctgtg	tttcttttat	gatctcgata	2520
aggcgggtag	cacagttgtc	ataaaagaat	tatagcggta	tcgtttattc	tcggggcgaa	2580
tattccatgc	caaatactct	cagctttttc	gatctcttcc	tgtgtgagat	tcaatactaa	2640
ttccacattc	ctcttccgct	ccgaagggtat	tcttccacat	aataggatgt	ataaaagctt	2700
caacggtaat	aatccgtttc	gcctcgtaca	aatcgaagca	tgaattaggt	tcgtttataat	2760
cgaacatgcc	ataattgtaa	gcaatatccg	tccttgtagc	ggattgagaa	tcctgaatgc	2820
gacatgaccg	tagcgagtgt	atccgcttct	gtagaaggag	aagagatcaa	gaggctcatc	2880
tgcagacctt	gtctttcgtc	tcctgtgtaa	ctgtctgtgc	attggccaga	agtcgcgtgg	2940
caataagaca	atcaagatgg	cggagaatag	tccggccgat	actttcagtt	gcttagatat	3000
ttttttgcc	ttgtgaatta	ccaatatgag	agtactttta	ttatttttc		3048

(2) INFORMATION FOR SEQ ID NO:1227

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2625 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2625

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1227

acaagcatga	ggctcagcaa	ccccggcaac	tggacattaa	ttcactcaat	aatcgacagc	60
tatggactat	atcaatgcaa	taggccggcg	taaggctgtg	tagctcgtgt	ttatctgagc	120
gaaggctccg	gcaagatcgt	gatcaacagc	gcgaaatcga	acagtatttc	ccgtcttcaa	180
tcttgacgta	tatcgtaagc	agccactttc	caagctcgat	gttgctgcga	aatacगतat	240
caagacaatc	tgcgtggagg	tggtttcaaa	ggtcagagcg	aggctgctcg	cttgctatcg	300
cccggtcact	ggtcaagatc	aatccggagc	acaaaccgcg	tttcgttcag	aaggcttcat	360
cactcgcgat	cctcgcgtgg	tagaacgtaa	gaaccgggac	gtcccaaagc	tcgcaagaga	420
ttccaattca	gtaagcgtaa	agtccttaga	ggatatttct	cgcgtttagt	atctaaatcc	480
atcggattgc	ttcgggggta	attcatttct	tttcgagctc	gctctaccgg	tttgattga	540
aacagtaatc	attacaaaga	acgtaaacga	aaatgtcaag	aatttctttg	atcaattatt	600
ggaagccggg	gctcacttcg	gacacctcaa	gagaaaggga	atccggctat	ggctccgtat	660
atctttatgg	agcgcaacga	tattcaatta	tcgacctgca	caaaacagtt	gctaaagtag	720
acgaagcagc	cgaagtatta	aggggtatgg	caaaaatggc	aagaagattc	tcttcgttgc	780
cacgagaagc	aggccaaaga	acctatcgcc	gaattggcca	aatcagtggg	aatccctatg	840
tggtagaacg	ctggccgggc	ggtatgctca	ccaacttccc	cacatccgca	aggcggtgaa	900
gaagatgacc	cagattgaca	aaatgacggc	tacggcacat	ttgataatct	ttccaagcgc	960
gaaaagctgc	aaatcactcg	caacgtgcc	aattggagaa	gacgctcggg	tctatcgccg	1020
atatgaacct	ctgccttctg	ccctgttctg	ggtggacgtg	atgaaagagc	acatcgcccta	1080
cgcgaggcca	accgtcttgg	catccccgta	ttcgcaatgg	tggatacaac	agcgatcctt	1140
cgttatcgca	ctatgtgatc	ccctctaacg	atgatgcctg	aaggctatcg	aactgatcgt	1200
aggcacgatg	tgccaggcta	tcaacaaggt	ctgatggagc	gtaaggccga	aaagcccgaa	1260
gaggaggaga	cggagaagca	gctccccgtc	gcgaacgtcg	cgctcgctca	ggagctcgtc	1320
gcttcgtcag	aatgagaacg	aagctacggc	agaagctgcc	acagaggtag	caaagctccg	1380
gaagccgaag	aggcggaata	aacagcacac	atggaattat	ggctatgggt	tataatccat	1440
gagtggcctc	agcatgcagg	ttccaaactc	ggggttatga	ctcatggctc	ataacttttt	1500
tacgaacta	ataacccatc	attatagaac	aaaccaatgg	ctgtaacaat	tcaagacatt	1560
gccaagctcg	taagatgagc	ggtgccggca	tgatggactg	taagaatgcg	ctcgaaggtc	1620
caacaacgac	ttcgagaaag	caatggaaat	cattcgcaag	aagggaagc	agtagctgcc	1680

aagcgttcgg	acagagaagc	ggcgggaaggc	tgcgtctctc	agccgacaaa	gacggatttg	1740
ccgctatcgt	agctctcaag	tgcggacttg	atttcgtggc	aaagaatgcc	gaatttatcg	1800
agcttacaca	aaaatcctca	atacttgctt	atggacaaga	agccggccaa	caaagaagag	1860
ctctcgccct	tcctctggct	gacggacgca	ccatagccga	ccacattacc	gtcgtatcgg	1920
tgtgacgggt	gagaagatgg	aattgggtgc	ttacgaatac	tcagcgggtg	ctccagcatt	1980
tcttatatcc	acccggggcaa	caagctggca	ccgtggctgc	attcaacgaa	gctatcgagc	2040
accagatggc	tcgtgacaag	ccatgcagat	tgcagctatg	aaccccgctg	cagtactgcc	2100
cgagcagtcg	atcagcacat	catcgatcag	gaattgcaga	tcgctcgcg	aaaggcctcg	2160
aagccggcaa	gccggagaat	ctgctggatc	gtatcgctca	aggtgtttgc	agaagtacta	2220
caaggaaaac	acactcttgc	agcaggagtt	cgtgaggaca	gcaagctgac	catcgaacaa	2280
tacctccata	ccggtagcaa	gacctgactg	tagtaggctt	caagcgtttc	acgctcaacg	2340
ccgactgata	aatagctgcg	cgaccaagta	gctttcgtca	ttcccgaacg	gctatgctca	2400
ttcacagggc	atagccgttt	ttttgtgcaa	cgggcagcct	tacataaatg	tgaaagatgt	2460
atggtttatc	ccgtgcgaca	gtcttattcg	atgattagtc	atttccattc	aactgttcca	2520
agagccacgc	gacagatctt	tttggtcgga	aaacgtcatt	gttcgccggg	aaatctgtat	2580
ttcggctctg	caatgcaatt	gtccggcgctg	caaacttgca	aaatt		2625

(2) INFORMATION FOR SEQ ID NO:1228

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 338 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...338

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1228

aaggcaatta	caaccaccaa	gcactcgtta	ctgtgaacaa	ttatactgag	atgctatggg	60
gcttagcatt	tctacagcag	gcaatcccga	cctctcgtgg	aaaagcagtc	tcagttcaac	120
ttcggtttgg	ctgcaggggc	tttcaatata	gcttatctgc	agaggtagat	ttctatgtcc	180
gcactacgaa	tgatattcga	ttgatgtccc	gatgccttat	atcagtggtt	tcttctcaca	240
gcatngaata	naggctctat	gaaaaatacg	ggtgtagacc	tttctcttaa	ggggcgatct	300
acaaaataaa	ggactggaat	gtatatgctt	tctgcgaa			338

(2) INFORMATION FOR SEQ ID NO:1229

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 616 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...616

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1229

cgccaaaccg	gtcataaaga	agaggaagaa	agtgatccag	aagctttgtc	acctttctcc	60
ttgcgcatca	gttggaaaga	aataccgac	agccccaag	caacggaagc	atgtagtaca	120
cattgtgtcc	gcgattcttg	gtcataagtc	cggcattgtc	tccgtaggac	cgataagaat	180
cttgtcaatg	aagggatacc	cgtcacggca	ttgccacgca	atagtcctcc	gtcgcttgc	240
aggctcttctg	acggccggaa	aaattccaaa	ggaaataacg	ccagtacata	taatgacctg	300
ataattgaag	aagaatttca	ggttctctcc	gaatgtaggc	atatgggtatc	cgtttcggat	360
cgccccatcc	agatattata	gctttgcgga	tgccatcggg	agtgggaatag	acacgtggga	420
aaagcatcat	ggaaccatct	cataatcgta	ttcgcgttgt	gtatagagcg	tttcgtaacg	480
atccttatct	taggattttac	cttgggcgaa	ggccctgtta	cttctgccat	ccttcaacca	540
caggttgga	tgcaaaggaa	ggcccgtaga	tcacgggtac	ttcgtatttt	cgcgagcaag	600
gtagctacaa	gccgaa					616

(2) INFORMATION FOR SEQ ID NO:1230

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 984 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...984

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1230

ttccggagca	atattccaag	ccactcttta	ttgcgcatat	gcagaaatcc	gcgaccttcg	60
tggtgcgata	aaaacgcgct	gttgtgtact	gaaaaaagtg	acagttggga	tgtgcgggat	120
tcatataagt	ttacacacat	atccggtagt	cctatgcagg	ggttacaact	gtcggtcggt	180
atttcccctt	gcacaccaca	cgttacaact	gtcggtcggt	atttcccctt	gggtttacac	240
aacaagcccc	ctcccacaac	atttaggaca	ctattgggtt	tttagtacct	ttagctgtga	300
taatattcag	atctgctaca	tgaacaatc	ggggacggct	gcaacaagct	aacgatattc	360
tatgtcggtg	tgttcttctt	ctttttgatc	ggctttggct	tttcgccact	atcgggaaag	420
agttggaaac	caatgtagtc	gcaaagcgat	gtcccttcgg	gggccagggtg	gattggtcgg	480
tgctttcgat	ctttcagcga	atcgggtacat	caccatttca	cggacactat	cggtgtcttt	540
tgttgcagat	catcggttatt	cttacgggtg	cgaggctcgt	agcgtgggtt	tcgggaaaat	600
cggccagccc	actgtaatcg	gtgaaatcgt	ggcgggatac	tcctcgccc	atctctcttg	660
ggagcggttt	ggccggaggc	ttatgagtc	ttttcccctt	gtccgctttg	gccaatctgg	720
agctgctcag	tcagtcggcc	tcatacctgt	tatgtttgtc	attggcatgg	agctgaatat	780
caatacatta	agcctcgctt	cagccaatcg	atgatcatca	gtcatgcagg	tattttatcc	840
cctttctctt	aggcttgctg	atcagctata	tgacatataa	ggttatgcag	ccgataccac	900
gacttttctc	ccctatggcc	tctttatcgg	ttctcgatga	gcatcacggc	ttttcccgtg	960
ttggccagaa	tcatacaaga	cgtc				984

(2) INFORMATION FOR SEQ ID NO:1231

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2623 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2623

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1231

cggcaggatt	ggctgatttc	ttgcgtcgag	ccaaactcag	ccataccacg	cggtatcgt	60
agctacggct	gcagcagtgc	ttgtccctat	ccagatggcg	gccagaactg	ggatgatcat	120
gatcgctcgg	gacgctatgt	gggacgcatt	tcggtgtcaa	ttacttggag	agctgcgacc	180
ccaatgccgt	tattttacct	atggcgataa	cgataccttc	ccccctcggg	atgctcagga	240
ggtagaggcg	ttcgtaccga	tgtccgtgtg	agcaatctca	gttacttggg	agcaactggg	300
atgtgcgcca	gatgaagcag	caagcctatc	agtcgcgacc	gtccatttga	agaatatgaa	360
tgaagccttc	atcagccgga	atgcctttgt	tctgtcgatc	ccaattactc	tgccagagat	420
ccggagctga	acctccattc	atcccgggta	gcggactcac	ggccgatggc	aagcccatca	480
tgatgctgtc	gaagccatga	aaatagccgc	tctgcgggtt	ccttatggca	atgggtgtgag	540
ccgtctgaga	acctgtatct	gcccgtagat	tcgcaagcat	tggggcagcg	tttggcgatt	600
cggttaaggc	gcatgtccgt	caaaccatcg	atctgtcttg	gccggtaagg	gcgtcctctc	660
attggccgac	ctgaagcgtt	ctcgattgat	agccaataac	gaatggaagc	gtcctatcta	720
ttgggctatt	acgtcccgag	caattctttc	tccaacctgc	cggactactt	gcgtcagacc	780
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tacttcgatg	cagatattcg	caattccacc	atacctatcg	cgtagctgtg	ttttctccgt	960
tggcaaaggc	tctgctcgaa	gaggcgatag	cgttcgtgcc	cgtaagggtg	tcaccaaatg	1020
cctccaagaa	tcagtcctga	agccgtgccc	tatgattatc	gctcgctggg	attggcacia	1080
ccctgtacga	tgcagatatg	gtggccgcag	cagaccggat	agtcaagccg	tggcaggctc	1140
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cttataatag	caaatgtttg	atgaatatct	gcccgtgttc	cagaactatt	ataagatgct	1320
ctaactgatg	agcagggtaa	tagcaaacct	caataaatgc	agctcagact	cgagaacgac	1380
ttatctgcgg	tgtgcccattg	tggtaccggg	ctttgttccc	cgtgccacgt	ggcgcatctc	1440
tgccaaagaa	ggaaaaagca	tctatctgac	ttcgatgacg	gtcccatacc	ggagataaca	1500
ccctgggtat	tggatacgcc	gatgaactcg	gggtgaaggc	cacgttcttc	tgtgtggcgg	1560
ataatgtggt	cgctatcccc	atctttttgc	cgagatacac	cgctcgtggtc	atcagggtggc	1620
aatcacactt	tccaccatct	gcaagggtcg	aaagtccgta	cacgtactat	ctgaaagatg	1680
tggaaaggcg	tgacgcactt	atcaattctc	gcttcttcga	ccgccgcgatg	gccatcttcg	1740
cttcctgcag	acctcctgc	ttagaatcac	tacgacatta	ttatgtggga	tgtgatcacg	1800
cgcgattata	atgtgcctt	tcaccgcgata	ccgtcttttg	ttcggtgggt	cgctatgcgc	1860
gcacggctcc	attattacct	tccacgactc	cctcaaagcg	gctcccaata	tcagcaggcc	1920
atgcctcgcg	ctgtgcgctg	gctattggat	gaaggctata	cttcaaattg	ctgggcgacc	1980
cggccgacta	agccgtttac	ctgttttttt	gtccgatgat	tgtccttacg	gaagacggat	2040
ctcccactat	cctttcgtct	attacggcga	atactaccac	tccatacacg	gtgcgtgtcg	2100
tgagagcaac	atgtattcgt	tcatacggga	ctgttgccac	gtttggaatc	tttcgacctt	2160
ccggtacttt	gtatctcttt	gaagtccggat	tcggaacggc	tctcatgcgc	tactgactct	2220
ccgcgaacaa	cgatgtcggg	gtctctccat	ccatactctg	ccattgagaa	atttcctctc	2280
gaaagggatg	tatatgagca	tctcgctttt	ctgtgggaat	ggctgatgaa	gacaaactcc	2340
tgcaaagtct	ccccatgcac	cgtgggggaat	ggattgtgaa	atatgtcccg	gcttcacggt	2400
gacaagatgat	catccgatct	gaccgatatt	acattccgca	agcctatcga	ctcatctatt	2460
tcgatgcttt	ctctcccga	gctcagccgg	agttgtggat	gaagagatct	tcacccgaat	2520
gggtggccgca	tgtcgatccg	gagccgtatg	gccacctact	gcgccaaagg	cgagatccgc	2580
cgctcggtca	cacgtgcgga	ttccatatgg	aacgccgggg	atc		2623

(2) INFORMATION FOR SEQ ID NO:1232

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1138 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...1138
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1232

cggtggaatg	tgcaaacttc	aaaaatgttt	gtatatatca	aaagaattcc	gatatttgct	60
tgcgagaagt	tttaaataatg	tataatctta	aaaaaacaga	aaatgagaaa	attctttttg	120
acagtcttat	tggcaggagc	gttttcttcg	caaatgcagc	cgatgttact	gcagtcactt	180
gttcaacgcc	taacggggag	aaacccatgt	aatggttttt	tgtacggacg	gcaggagttg	240
tgatttatct	tgaaaaatata	gggagatgag	acagattaca	acaatgtaat	gagtaagtta	300
tgcaagcagc	aaagagattc	tgcgcttcta	attttccatg	tttaaagtga	gtcaaaattt	360
gaacgcagaa	gctcctcaga	cattagaacc	caaacatctt	caaatcccat	ccctggtaga	420
aaaattaagt	gatcattgta	aggagcctta	tagtattcac	tataggctcc	ccaaccctca	480
cataatatga	aatccaatga	cgttatttcg	catthttattt	tactttctac	ttactatagt	540
ggtatctatt	ccccttctgc	tcaggaaata	acattggagg	ctttcaaaca	gatactcttg	600
ataagggttt	ccttaataaa	tgcatttata	gggtatatac	caaactgaaa	ttaagcagga	660
cacttcacaa	aatctcccta	atagaggtta	acactgctac	agataggatc	aaaaatgagt	720
aaatttatcg	atttcatcag	cattatacag	attcacttag	agatgaaaca	gcaagaaaaa	780
aaaacattcg	cttgccacga	gtgaagtgc	aaatttccag	tactctctat	attcaaaatt	840
atattccgaa	accaagtatt	tagaaattat	ccccaaaagg	actcaatata	gtaaggatta	900
ggaactgaat	tcggtgaata	tttcaacttat	gagaaatagc	cccacggttt	ggactgggaa	960
atttcaactga	atgaagaaaa	gaatatcaaa	ggatatcgaa	tgtaaaaaag	ctacatggtc	1020
cttatagaga	cggattttat	caggcttggt	attcagaaga	tattcctatc	ctatggggca	1080
tatggctctt	ggaggcttac	cgggcttgat	cattggagat	tcgagaccta	ataccgag	1138

(2) INFORMATION FOR SEQ ID NO:1233

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 610 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...610
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1233

acgctttttca	gttcgttcac	atcggtctct	tctgtctcat	aaccgaagcc	tgtttgatgt	60
tcagttctac	gccggacaaa	ccgtatgaag	agagcttctc	ttcgcaactgt	ctatctgagc	120
cggagaaacg	gtagcaccga	tcaatacact	tctatatgct	tccggttggt	ctcttccagt	180
agctggctgc	gtatgactgc	gtattgggga	tactgccgat	cacctctcgc	acgtacttgt	240
gtgcgtttcc	tgaagtagat	tgttgctgaa	gagctgtatg	ctcagataga	tactggagca	300
atcgtagata	tggcaatgac	cgtaatgac	cggcgcactt	tctctctcgc	tgtttattga	360
ggaagacttt	gcgtgggaac	ttcagcaaac	gtctgcaagg	aaggtagcca	gtgcgataaa	420
tacagaattg	atgatgaaga	gtagaaagcc	ccgaagaaat	atgcaaaactg	cccagtagca	480
aggccgaaac	ggcagtagac	agaggaggca	taagggccgt	cgcgatagcc	acaccgggtt	540

tacattgccc ttgcttttgg tactgceggc gacaatcccc gcagcaccce gaagaatgcg
atcagcacgt

600
610

(2) INFORMATION FOR SEQ ID NO:1234

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 914 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...914

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1234

cgacaccgaa	atgatctttt	cggaagagct	tctctccggt	gataacagga	ggctgcccg	60
aatctccatc	cccttttgtc	cggaatcag	gcgttggtg	acaaaggagt	ggccattacg	120
acgacacaga	cgagtaaaaa	cagacactct	tcatcaccat	cggagtttca	ggttatcgat	180
tcgttcggct	cgcaacggtc	ttcctgctgc	acgcagaatg	tcagggttcg	tccaccgtta	240
cgctctaaag	cgttacttcc	agctgcttgt	cttcgggcag	ggagaactgc	tccacgcaaa	300
gaccgggtccg	ttcggacgtc	ttccccctga	tccatgccac	ctgtggcagg	ctcgaagcgg	360
ctgcaaaaacc	tgtcctgaa	tcgctgtgcg	ttggccacct	tttatccacc	acttgaaggt	420
gatgaagtcc	accgagcagg	gatattcgtc	tgattttcga	taacgacgtg	gaagaaaagc	480
agcccgttgt	tgcatacagt	cctcgaagga	gaaactgcat	gctgaaatgc	cgcgcaccgt	540
gtgcttaacc	gttcgcttat	tatgcttgta	gatggtttgc	atcatcagtt	cacaagtaca	600
ggcgactcgt	tgcccaattc	cttgaagtag	atgtcggacg	gttcgaaggc	aggcgtcctt	660
ctccggaata	caggaaattgc	gcttcggcct	gtcctggctg	ccctcggcat	agccggagca	720
agctccgntc	tgccccggtg	gcacaagaag	tctttcatct	ccacattgag	tttctccggc	780
tcttggcata	cttcacattg	taggagtaaa	atgaaccgtc	ttcacaaatg	accacagggt	840
ggctctncgtt	tcaaaattcc	gtacggcagc	cttgacacgc	agacgttttc	ggcatcttcc	900
gcttttcggt	tatc					914

(2) INFORMATION FOR SEQ ID NO:1235

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1044 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1044

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1235

cgaggaggtta	tggtttgcgc	catcagtcga	togaagaaag	cacagtcccc	cgtatcacga	60
attgctgctg	catcagcctc	agggagctga	cgatgatatg	gcgataatcg	catatgcggt	120
catcgtatcc	gcattgcttt	ccctgtaaaag	agaaggccgt	acaatatgaa	caagaaggaa	180
aagatgaaaag	tactgcaagg	cgtttgagc	gcaagatgag	cttgatatgc	agtgtctatca	240
cctcgctatg	ataccatgct	gacgcacaaa	attcagattg	tggtaccgct	ccgtctgttg	300
gatttggtgc	gctcttttagc	atagcgatgc	tgtctgaaat	accctggctc	gctatatatg	360
ttccggccaa	tatcgatgcc	atgcagatcc	atcgatatat	accggaaggg	acgagacgaa	420
gcggaacagg	cagtccgacc	aggcacgaat	ccggtgattt	ctgtggcgag	catgagggtc	480
atggcaccga	gacgatgata	tagaatcgga	gaccatcgcc	cagtatgcgc	ttcagatatg	540
agccaagagc	atatcggtca	gcgtaagcat	cagcagggtg	acgaggggac	agcgaatcgc	600
gctgcccctt	cttctatccc	cgtcacaaat	ctgtaagcag	aaagaggaaa	acgaagacgt	660
agtaattgat	cggattggcc	aatgggggaa	tataaggtac	tgtgctatgg	ctttgcgcgg	720
tatcggcagc	tgccgtagta	gttttcattt	atatagttga	gcggttgcat	gaaaaggcgg	780
atcacagacc	ggcaagcatc	aggaaaggaa	tgagtccggt	cattatttgc	atagagcaag	840
agccggaaaag	ctttccttaa	ttatgatcgg	aaagaaaaga	ccaaaataaa	aaggctcaca	900
cctacgaaca	ggaagttaa	ggcccaaaat	acattatggc	aacgctctgt	gccgaaatgg	960
tggagcggat	cgtgcgcgc	attcgtgtcg	gaatagttct	cgtggtacat	ggtctgtata	1020
aatctcgctc	aaagaaaccc	cgaa				1044

(2) INFORMATION FOR SEQ ID NO:1236

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 471 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...471

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1236

tctacagact	tttctcattt	tcttccgatg	ccgagattac	cttgagggca	atccccgacga	60
tctgaataca	agctatgtac	aggagcttcg	tactctgcga	tcaatcgaat	aagtatggga	120
gcacagagtt	tccacgatga	agacctgact	tcctcaatcg	tcggcacaat	gcccgcgaag	180
tgctcgaagc	agtggaaacct	gccgcaatgc	gggacttacc	aacctgagta	tcgatcttat	240
ttacgtctac	ccgggcagag	gcctgctcgc	tggcaagaaa	atatctccgc	agtgttgctc	300
tctccccacc	ccacctgtcc	gctaccatct	gatatacgaa	gaagaacccc	cctgacacgc	360
ctactccatg	caggaaagggt	gcgcgaagtg	gagaggaggt	aagcctcgaa	ctcttccgca	420
tgcttcgcga	acagctgaca	gagccggtat	gaacactacg	agttcaattg	c	471

(2) INFORMATION FOR SEQ ID NO:1237

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 644 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...644

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1237

cgcggttctac	gccgaaatct	gcgattttccg	cacggcggaag	gacatcgggt	cgaccgtccg	60
gaaaagcatg	aaattctgca	tcacattccg	ccgacgccga	gcaggaagcc	tttatccaaa	120
agctgatgga	atttgcccg	accggtatgc	cgagctattg	ggtcgggaga	aactctccga	180
tcgggaagaa	aaggcgagat	gcttatcgcc	accgactacg	cccgaagat	gtcgctcgac	240
atgcgatgat	ctctcttct	tacgaagacc	atatcgacaa	caaggcttcg	cactcgcccg	300
actgatccac	gattattacc	ggaaatatga	acgggagaaa	ggccccagtt	tgttttctcg	360
gatttaggca	cgtacaagcc	ggacgagtgg	aagtttacag	cgaaatcaaa	cgaaaactga	420
ccgatgatta	tggcatccct	ggtcggaaat	ccgtttcatt	caggaatgca	aaacggaggg	480
tgccaagaaa	cgatgatcgc	gggcatgaat	gccggcagca	tacgtgtcct	gttcgggtca	540
ccgaaatgct	cggaacgggc	gtcaatgccc	aacagaaggc	tgtggcgggc	atcatcttga	600
tacgcccctg	gtgcccagtg	ctctgagcac	ggatgcagca	tcga		644

(2) INFORMATION FOR SEQ ID NO:1238

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 530 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1238

ctaagcggaa	tgccgacctt	cggtatcgag	ctgggcgaca	tcgaacatcc	gaatacacgt	60
tggaggagat	tttccggtat	ttggccgatg	cggacaggcc	ctgtatcggt	gccatcgatg	120
agttccaaca	gattgcgaag	tatccgggaa	gaatatcgag	gctcttctgc	gcactcatat	180
ccaaaagctc	cgcaacgcaa	tttcattttc	gccggcagcg	aacggcacat	gatgcaggag	240
atgttgccct	ggctgcacgc	ccgttttacc	acagtgccga	tatgctggag	cttaggccat	300
cgaggcggat	gtttatatcc	cttttatcgt	agggcatttc	gagaacgccg	atcgcagcat	360
ctcgcccgat	gatgcacacg	ggtttacccg	ctttcaaagg	gcatactttc	tatatacaga	420
agacctttta	cgaggctttt	gagacacgcc	cgagccgaag	tatgtaccgg	ggagatatcc	480
gagtcggcca	cgataatatg	atagcatcga	acgataccat	attccgcgag		530

(2) INFORMATION FOR SEQ ID NO:1239

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 591 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...591

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1239

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ccaaaaggaa aagagaaggt gatatgcttt gatcatgcag aaagagggca cagaggtcgc      60
ctgtgttttt ttctactttt tggattgcat aatcgatagc acaaactgca tatgggtattc      120
aactttctga tagtttccga tgaggtgaag atttccgccg agagatagcg atcgactccg      180
aagctacctt cctcgactcc aaaatgcgat tctggactcg gtgggctatt cgcacagcga      240
gctaagtctt ttttctctg cgatgaggac tggcacaagg ggcaggagat tacgtgatgg      300
agatggacac ggcctcggat gaggactcgt atgtgatgga gaaacacgct tgggaagagtt      360
catcgaggac gaacaccaac gtctcgtctt cgattcgact tgatgacgga gcgttacttc      420
tttatcgaag tgatggatat ataccgggca aatcgctctc ggagcctaag ctctttacgt      480
cggaaggatt cctccgcaac aaagctctct ggacgatctg atggatccga ctgccattca      540
accaagcaag cccggggatt ggatctggaa naanacttct tcggcgacgc g              591

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(2) INFORMATION FOR SEQ ID NO:1240

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1158 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1158

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1240

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tcattcttgat cagaatattc tcctcctcaa tgccttccgt ccgggtccgaa gggaaaagag      60
aggtaagaga tgattattgt tggttcttat tattgtaatc ttgggggttga agtctttcca      120
aatcttcagc agcttttctg tagcttctgc agactgcctt ggaactcgcc gccggcagca      180
ttcttgtgtc cgccgcaccg aagttctcgg caagggtgtt caccggatag ttgcctgtgg      240
agcggatgag agcttgatct gatttttgcg ctctcgcagg aaacatacag cctcatccct      300
gcaatatcga ggggcagatt ggccagacca tcggtatcac ccgcccgttg tggaatcgta      360
ccagctcctc tgctgacagc gtgaagtatg ctgcgccatt tccggcagca aagtcatttt      420
ctcgtacagc acataaccct gatcctcatc ttgccttccg aattttgctg aaaggtattg      480
cggatgatcg gtctttgtcc gcaccggctc gcataagatc tgctacgagc agataaagac      540
cggtacggaa gagctgtagg aaaatacgcc cgtatccgtc agtatccogt catcaaagcc      600
gtggccgcat cttgggtcag gtaggactcc atgcctaggc cttggccaaa cgcaagacca      660
actccgaagt agaagacagg ggggggagct gaagctgaga gtgaagatat ctgccggata      720
gagatgatga tcgatagcac tttgggggct gacgaactct ccaatgcgct ttgcagtcct      780
gctaccgatg tggagcattg aaatccatgc agaagaccag atcggcttca gccatgcctt      840
ctccgcctcc gaagnatgag tctcgtgcac tattactttg ttgctcccgg aatgcagtac      900
aggtattggg gaatatcatc aggtacgatt aactgatgtg ggacntgcct ttttctctca      960
gcatggcagc aaaaccgata tgcttcttac cgagtcgcgg tccggagccg tatgcgagat      1020
cagagcgatc gctctgcctc ctctaccatt ttacgcaaag ctgtttgccg agccggatga      1080
tttttattcc tgccataact tttcctcttt agctttttct tcgctttttt tcagagattc      1140
gtaggggatc ctctagag

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(2) INFORMATION FOR SEQ ID NO:1241

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 914 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...914
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1241

gaactaaact	tctcactcat	tattcaacca	atagaaaaaa	cagataagaa	ataatcattg	60
ctatggctct	tacaaaaact	tcaaaactct	attacaaagt	ccacgactac	atccttatta	120
ttctgggatg	ctccatctat	gcttttggtg	gacgggcttc	atcctttccc	aaggaattac	180
cacgggagga	ttggccgtat	ctccactctg	atcaagatcg	ccacgggtat	tccggctgcg	240
atacctacaa	tatcatcaat	ctgggattag	cggtagctgc	tctgatcttc	ttggatggcg	300
tttcatggtc	aagacgggtca	taagcgttgt	cataatggcc	atttcattcc	gataggtgaa	360
gagtatctgg	tcgtcacgga	gatcgtaaat	gggtaaaagt	ttttacgcct	cttctactgc	420
cgaatgaacc	ggccttagct	cggtagatcg	ctccattctt	agcgggtctg	gtattgcat	480
agtattcttc	tgaactccag	tacggggcgt	accgatatta	tcgtagccat	catgaacaat	540
acaagaacat	gtcgttcgga	cgcgccattc	tactggtgga	ctgtaccata	ttttgtgctc	600
gtatctggtc	aatgtctaca	tcgcgcggca	gtcacctcgc	acgctttcaa	cctgcttata	660
tattcggcca	tagaggttat	cctcgttcta	cagtcttggt	attggatatc	caattcgaat	720
agacagtcgc	tgcaatcctc	atcttcagtc	tcaaaaacga	agagctcagt	aatgccattc	780
aagacgcata	aaaagggggt	gtaccctgct	ggatgcgaca	ggaggctatt	ccgccaacct	840
tgtaaagttc	ttgtggctcg	tgcacgcaag	acacaaagcc	taccatccac	agaatcattc	900
aggagatcga	cccc					914

(2) INFORMATION FOR SEQ ID NO:1242

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 601 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...601
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1242

cggtttttga	ttagtcttct	gtagccttgg	ccaagaatat	aatagtcgtt	atcttttggc	60
ttcaggcaga	tttttggtg	atagcagacc	tttatcggcg	gtcttgctat	caccctcaat	120
ttgtggcttt	ttctcggttt	ttgtcttatt	cggaaaaaaa	cctttatgtg	tttagtagag	180
tcttctgtag	atacctcgat	ctcatctaca	gtaagctcta	cgtagtgtgt	ggcgagcaat	240
ctttgtgtgt	cttaagcact	gattccgcaa	agcctcttac	ctcttcgtcc	ttcagccgta	300

ttcgtgcaaa	ggtttcttgg	taagaaggca	tccgagaagt	tcaccagctt	cggatatacg	360
tattcgggct	ggcagttcag	tatcttggag	agttccagtt	gagttcgact	atatagccga	420
aaggattctt	cttttggat	atttgaatac	ctctgtgaag	aactgatagt	ttgcttctcc	480
atgcggcacg	gatagtgcct	ccaacgggta	ggatagtgcg	tggacggctc	tactccgcat	540
tccgaagcta	taccggcata	gttgctggcc	atgatcattc	tccagcttcg	agcggattca	600
g						601

(2) INFORMATION FOR SEQ ID NO:1243

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 596 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...596

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1243

ccttacaggc	aagaaagccc	gtatcaaaga	gcgtcgcgta	gctctttctc	taaagactaa	60
tttgcttata	acggttatta	gggggggtta	tagagataat	cctcattccc	taagtattat	120
gcagagaggg	tgtatcgaaa	attgattcgg	tacaccctct	tctctttaac	ccagattggg	180
cattagagat	taacgttaga	atcaaggcat	tacttattac	tttcaaggaa	aaagaattat	240
gtccgataag	catgtatttc	acatcacccg	attgggtgaga	tgaaattggg	atgcgatgtg	300
atttctataa	gaaggtaagt	ggcagttatt	aagcagatta	caagaaaaat	ctctaattgac	360
ggccattagt	ttttttgaat	gcaatccact	ttttccatta	acataggctc	ttataaactt	420
gaaggattaa	gcctaattta	gctcaccaat	tgttggttga	gacccgggta	acacctctgc	480
ttgcaacaac	tcccagtctt	tcttcaagac	acgctcaata	agcttgagga	gaaaaaagtg	540
gactggctcg	gcgatagggtg	cttctgnaac	aacagggtat	cgaatcctac	aaagca	596

(2) INFORMATION FOR SEQ ID NO:1244

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 956 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...956

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1244

ccatcattgg	ttacagtccc	gcttttaggg	ttaggcatca	atccgcgagg	cctaaaaacac	60
gtcccaatgc	accgatttta	cccataatgg	caggcatgtg	atgatgacgt	ctatgtcagt	120

cccaaccagc	ctttattttt	tctatgtttc	gtcaagacct	acatagtcag	caccagcttc	180
tttagcttca	gcttcttatt	aggagagcac	aatgccagaa	cgcgatctg	ctttccagtt	240
ccgtgggaag	cgttacaacg	ccacgcacca	tctggttagc	ctttcggggg	tctaaccxaa	300
gcgcacatca	atatccacag	atgcatcaaa	attggtcgtg	gtgtctcttt	caccaaggcc	360
gatgcctccg	atattgtgta	tgctttcccg	ggccaatctt	gctaaaggct	aacttctggt	420
tttttgtag	tttgctcatt	tgagtaagat	taaattatct	attccgggaa	gtccccctta	480
atcgcgatac	catgcttcga	gcagtaaccg	ctaccatttt	catggcagct	ttgatatcga	540
gcaattcaaa	tcgacaagct	tatcttctgc	gatcgtagct	acttgctcca	tgtgatttct	600
gctaccttct	tacgattagg	ttctgcagaa	ccactctctg	tttgctagct	tcaaggagtt	660
gaatagcaac	aggaggagtt	tttacgtaaa	atcaaaagac	ttatcggcat	agtacgtaat	720
tactacaggc	aatacttgcc	ggctttgtct	tgggttctgg	cattaaattg	cttgcaaaaac	780
tcatatgttg	atgccctttg	caccaagtgc	aggcccaacg	ggggtgaggg	attgctgcac	840
caccttttat	tgcaatttga	tttgtccagc	aacttcttag	ccttggtcta	aaataaaaat	900
tcagacacac	actatatcaa	tgcgagagag	aagatccgaa	cacaacctca	tctttc	956

(2) INFORMATION FOR SEQ ID NO:1245

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 929 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...929

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1245

aggatcccc	gatgataagt	gtgggacgct	cgccctctcc	cttggtctcg	tcagggcctt	60
gcgaatttca	tccgcacgt	tacctgcaat	ctctattact	tccaaccca	tgcacgat	120
ttcatggctt	ccgtcttcgc	ttgccactct	ttcactgtcg	tagaaaagctg	tacgtcgctt	180
gagtcgtaga	acataacaga	ttgttcagcc	caagggtgcc	ggcgattcgg	ccggctcctt	240
gtgatcttcc	tcctgtattc	ctccatcgga	aatgtaggca	tagatcggtt	ggctatcatc	300
cagccgaagc	gatgagcgag	gaatttggt	gcgatggctg	cacgacagca	taggtgtggc	360
cttgtcccaa	ggggccggat	gtgttctcca	ctcgtgcatg	acatctactt	cgggggtgtc	420
gggtgtgatg	ctgccccatt	gcggaatgct	ttgaggtcat	ccatggagta	cttgcccgtc	480
aatgccagct	agcatacagc	atcggggaca	tatgtcccgg	atccaagaag	aagcgatcgg	540
accggcccat	tgccgggttct	tcgggtcaaa	gatcagatac	tcggagaaaag	tacgtttaca	600
aagtccgctc	cgcccatggc	tccgcccggg	tgaccgcttt	ggctttttcc	accattgcag	660
cggccaatac	tcgaatattg	tccgcacctt	gttcatcagc	tttttgtcat	tcattccttc	720
taattatgtt	gaggtagatt	atatcttaaa	ttgcgattgt	cctgtgaccg	aagacatctt	780
ttccacaaag	gtaagaagtt	ccgttcagag	cacgtgggtt	actatattaa	ataatgatct	840
ttcggaggtc	aagctttgtt	cctctcccct	taagtgcact	gtcgaagctt	ttgatttcaa	900
aagacaactg	gtcggagtc	ggggatcct				929

(2) INFORMATION FOR SEQ ID NO:1246

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 544 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1246

cggtaaatga	aatatgaaac	aaaacgggta	aaagcacatc	tttgtttatt	ggattatcgt	60
acacaaataa	gaaaattata	gatatatatc	tatcgaaaaa	agattatcgg	attgacaaat	120
cggaaatttat	attataataa	atcctatgca	aaaaatattt	tcattttattt	ggagtatat	180
tgccgatata	aataggacat	gagggaaata	acgggatattg	ctgtagccga	atctggtgat	240
agtgattcaa	agagcggcct	gagactaaaa	atgctaaaag	ctggctgaaa	agtgaagcgc	300
ttttgccaac	ggaataggag	gaacgctcta	tttcggcgctg	gaaatcgcac	gcgccggata	360
attggtgtac	aggatattca	actgacaatc	agaaaattac	agagctgatt	gtggctcgta	420
tcaccccgcg	tccgggtttt	ggtgcatccc	cctgcaacag	aaaggaaaag	atattctggc	480
tgtcagagt	attccggaaa	acatactcct	ttctactatg	ttcacgatca	tcaccatacg	540
cata						544

(2) INFORMATION FOR SEQ ID NO:1247

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 454 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...454

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1247

gaggactgat	tcagagaaaa	acagtcctct	aacattattg	tagcatttgc	atattattaca	60
atcaatgtat	aatcattttt	gccaatacac	acttttactg	agagcaaacg	gtatcgctca	120
tacgcatagc	ttttttaatg	acataaaagg	gatattctatc	gctacatctg	tttcccatct	180
tctaaaatcc	gagtaatccg	aaaagattgt	aatggccttt	ttatgtatat	tctacatcgn	240
ggcatatgtt	tcgagctcgc	caaaaatttg	tagaacctat	ttcttcatca	aggtctctat	300
tggaatttatc	aaccaattcc	gctttgaaca	tctctctcaa	gcgtccgcca	ttacgggctt	360
cgctttcttg	tggaagaaaa	tactgtctng	atagcattat	accttttggt	ttaagccaat	420
tggaacctna	aaatttagcc	tggcagaaat	acna			454

(2) INFORMATION FOR SEQ ID NO:1248

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 454 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...454

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1248

agttcccgaa	tccgagttca	tccatcttgg	ccaccatagc	tttggcacgc	gcgcagcctc	60
gatacgtccc	tgcggaagaa	gagccaactg	gtcacctgg	ccgatacgaa	gagcatagcc	120
gaaccgttct	tgcatgctgc	cgcacaactc	cacatccgat	acaagccgct	gcattccatgg	180
cctcatccgc	attcttttgg	aaatggggat	agccgttggc	atcggggata	ccccccgtat	240
tgacgaaacg	aatccgccgg	actgaatgat	cttgtcataa	gccgagcgat	ccacatgagg	300
tctctgatca	cagggaagcc	ggccgagcgc	caaggctcta	tcggatcgta	tcaccatcat	360
cgaacgacg	catgtgcagc	tgacaagtgg	tgtgctatcg	taccggcccg	tggggatgac	420
cattgatgta	gagtgcagc	aaccgcaaat	acct			454

(2) INFORMATION FOR SEQ ID NO:1249

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 881 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...881

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1249

attggctttc	agggctctcta	ataggagcct	tgccgaatcg	accntgctca	acggatgacc	60
tctttgcgct	cactcgctcca	tggettattcg	gcaactccgc	tcctgccaga	tggatgatatt	120
gcctcactcc	ttgcagtgct	tcgacctgat	tcgccgtttg	ggaacgtccc	attcatattc	180
gttttcggtt	cgtttgggcg	cgtcaaaatg	cgtatggagt	aaccgtttcg	cacaagttct	240
tccgaagtgc	ccgtgcaacc	atcccatttg	cccggtaatc	aaaacaacgt	cttttgcata	300
aagaaaccca	caaaattcaa	tccgctaaga	caccgaaaca	aattataaaa	tgggatgcac	360
aagaaagtgt	acctcaatgg	aaaaatacgc	acaaaaaagt	tttcaacaac	gaagcggagt	420
ttggaatgat	tctaaataag	ctcctaaaga	gagggggcaa	tcggagtaaa	aaagacaaga	480
aaacggactt	tgcaagtcca	aatccgcttt	tcggaagatc	ttgaaacgat	ttatatataa	540
ccattttcaa	tttatatata	gattgtttta	gatttatata	taaaacgttt	caataaatat	600
atagatcata	aatgatttat	acataaattg	caggataaaa	aggccgattc	gggaggtgat	660
aaaacaaatg	caccacccga	gtttaaagca	aactcagtg	gtacccgggc	tcttgggtgg	720
attaccgaag	gggtatccac	ccttatatac	cataagtcta	tacgctcttt	ttctctaacg	780
cagtagtgga	tgtgaataaa	anggagcgac	tgtagcagtc	gtatcggcag	atgttggagg	840
tcataatatc	ggtgtgcata	tcaatttagc	agttttattaa	t		881

(2) INFORMATION FOR SEQ ID NO:1250

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 576 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...576
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1250

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gggacattcg gtatgtatat cccaagaaat cgttcaagta tgaaaaagga aaactccgac      60
tatggatgat ctggtggaag ctttccttac agcttcgtcc agagtggagac caactcgggg      120
ctgggggtatg acaagaacgc caatcacacc tgattacata tgccaaaaaa gaagagaacg      180
gtacgaacac gctgaatacc gctggggccaa ttatgacaag attcataaca aagattttgtg      240
gagcgcacat ttacgtatac atcatctgcc aatgctctct acacacctca agtaacatca      300
atccgaccaa ggggtctcgtg tgctgggtcat gggtggaata tctccgggca aacggatcgt      360
ttgggtctgat cgcagtggaac ccatgccaac gggtagaaga catcgtaatg caagaaggca      420
gcatgaagct ctacccgaat cgggtcaaga atatgctgtg attagcctgc cgacggcagc      480
aaactgcaag ctggtgttta cgatatgcag ggcagaagta gtcgctgagc ttcttcttcg      540
cacgaataca ggctgaacgt gcagcacttg gctaag                                576

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(2) INFORMATION FOR SEQ ID NO:1251

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2189 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...2189
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1251

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cgtccatcat gccaaagagca gcagaaacaa cgatacagaa gcccgtcaag agagcaacat      60
attggggagt gaagattttta gctttttcat ttgttcttcc tccaaaatgt ttaggtttca      120
tataagtgtt gatcagaggt gtcatacgtt cataattagg atggcgaatg acattccttc      180
cggataagcc ccgaattacg gatcacgacg gtcagcaaac cgatcagaca gccgtaaagg      240
atctgccgga cttggtcatc ggcgaagtca catagtcctg ggccatgaag atggtccgag      300
catcataccg ccggagaaca ggtggaacca cggagtggcc gggaggatgt ggggctggcc      360
aagtgcagaa tacctgccag tacgatcaca gagcgaagat agacacgggg atatgccacg      420
tgataatctt cttgtacagc aatagaccaa tccgagaagc aatgcgatag cactgacttc      480
acccaaagaa ctgcttcacc gataaacatg tgcaggctctg tggggatatt agccaaagcg      540
agggtgcgcc gtcattgtct gctttcatca ggccgagagg cgtagcacgg tctcggcatc      600
cagataggaa gtcattgtct cttcggtagg ccagagatca tctgggcagg gaaagagatc      660
aggaggaata cagcaccgac caaagcgggt tgaagatgtt gttccccaag ccgccgaagg      720
acatcttgcc caatggatag ctactactgc accgatgata atgatccaaa cgggcagggt      780
gctcgcagggt tgaaagccag caatacgccg gtcaagatag ctgagccgtc catatggtag      840
gctccttgcc caacatatat ttgctgatca ggtattccac gagcaacaag taagaacgga      900
tactgccggt acgatcaccg caccgattcc aactgatata ccgacatggc caaggcaggc      960

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aagagggcaa	tcagcacacc	tacatatctt	ttttgatgct	gtctccgctg	tggatgtgcg	1020
gtgaaggaga	atgataat	tattttccat	cgcttatttc	ctttcttatt	gcttacgtct	1080
ctttggatac	ccatcacagt	cttcttggtc	tgggcgatat	aatccagaga	ggacgggttg	1140
ccggacaggt	gaagctgcac	gaaccgcatt	cgatacgtca	accacgttgc	ctttttccgc	1200
tgtttcccag	ctcttatata	aggtgcgcgc	ataaggaaag	ccggattgag	tcccatcgga	1260
cacactccga	cgcattggcg	catcggatac	agtcgcgcac	aggcttgcca	actgcctctt	1320
ctcatcgaga	atcaatactc	cggagctgcc	tttggtcaca	ggcacatccg	gtacagcaga	1380
gcgcgtccca	tcatcggacc	tccgccgatg	atcttgcccc	tttctccggc	aagccacctg	1440
ctgcttcgat	caaagccgca	ataggagtac	tatacgaacg	aggaggttag	acggacgaga	1500
cagttttttt	cctgtaacct	cacgatgcgc	tcgaccagag	gcttggttct	ctgtactgct	1560
tcgtacacgc	gaataccgta	cccacgtttt	gtactacggc	acctgtgctg	ataggcaggc	1620
accgcttttt	acctgcttgc	ggatcactgc	atcgatcagc	tgcttccacc	gccttgagga	1680
tattgcacct	tcaacggcat	tacctctatg	cccggtatgc	agtggccagt	ttggtgaggt	1740
gagcaatagc	atctttctta	ttatctcaac	tccgatgacg	gccttgttta	cctgaatggc	1800
tttcatcagg	atatcacgcc	gatcatgac	tcttcgccgt	gctccagcat	aaggacatgg	1860
tcctcgtcag	ataaggctcg	cactctacgg	cgttgatgat	caggatctca	gtttgttgcc	1920
cggaggaggg	gacagcttca	catgggtagg	gaaggtagca	cgccaagacc	cacaataccg	1980
ggctgcagaa	attttggcta	cgatttcttt	gcateccagat	tgcatctctt	gacgatggct	2040
ggtgagcgat	cgatgcccct	tcccattcgt	caccttctac	gctaataaag	actgcgggct	2100
tgggataccg	cttgagtcgt	atacgttatc	gatcttcagc	accttaccgc	acacagtga	2160
tgatatttag	ctgatacgaa	tcctccggc				2189

(2) INFORMATION FOR SEQ ID NO:1252

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 839 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...839

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1252

cgctaaaaat	cccgtaacgc	aaaactccgg	ttacgggatt	ttatttggtt	ttagaaagag	60
gtgggacttt	caagtgtagg	tttcagtagc	aaataacctga	gtgaccggcc	gtaggtgcgg	120
atctcaatgc	gcttaccgaa	catgacagat	cgccatcgag	gtgcattacg	ccctctgtct	180
cacgctcaat	gatcagtttt	cggccttata	ggtgtccaga	ttggagttgc	tggtgatacg	240
cttggaagaa	gttgtaaagc	caattgtgga	gcttccaatg	gattgaaagg	acggtaataa	300
ctacatccat	tttaccatcc	tccaaatccg	ctaattggagc	gattaaggcg	ttattgccat	360
actggggcgc	attggcacca	agtgcagagg	aagctttctc	ctcaaaggat	ttgccgtcta	420
tcgtcagttt	ggatccttcg	gtcgttttgg	aggtaactct	cgatcatggt	tcgcgcataa	480
gtgatagggc	tcgactaccc	gcttgggcga	atttcttgct	aacctcggca	tcgaatccca	540
tccgcagggt	caaaagaaag	ggcgactatc	cgcttcacag	gagtcgatgt	gcgaacatgt	600
ccggctctga	tcacttcgag	agctttcccg	acggtgatgg	cagcttgagg	gcacgtgccca	660
accggttgcc	tgatcctttc	gggacgtacc	cagcactaca	tcggtgtagc	gaaggctttg	720
ggctatctcg	ttcacgttcc	atcgctcctc	actgcaatga	cccagtcgta	atgcttctcc	780
actgttgtgc	tgccaattca	cgtgcatggc	cagcacgttg	cgaatagggt	ataagagtt	839

(2) INFORMATION FOR SEQ ID NO:1253

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 511 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...511

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1253

```

aaatacgaat tgatactccg gtacgtagtc ttttcggctg attgtcgctg ggcacatctg      60
gcatacctctt tcatcagacg actgaatctc tctgcgagtc gcccggttta attgaagtcg      120
taaccgtata tatccagatt tactgtggtt gtccgcccac accgccaccg cttccgcccg      180
gagtaacctt ataacttgaa tctcaggata atcatccagc atggtacgta tctggtcggc      240
cacttgttca tggagcggtt tctctcggtt cgtccggtaa gaccgatatg gaaatgatga      300
tattcgtaac attgtcctgc atggcggaac acatgctgga agctcggcct gaccgacact      360
aaagctcggt ctgtcgattt ccggtatttc ttctcccaac tgtcgatcat acgaagagca      420
aaggctcggt gcagattgac tccgtgcca ccgcatattc tgctgaatt ggatatagcc      480
attgtcggac gaggaagaa ttcggtttga c

```

(2) INFORMATION FOR SEQ ID NO:1254

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1018 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1018

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1254

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gttcgccttc cggcagattc tttgtggtgg agcaggcacc tgtcagtaga caaaaaggat      60
ggggaggaat acttgccgta atactttcat cggattctat cgctttgtcg gaatgatatt      120
cgtctgcacg gataccggct cctcttcggt ttgagagctt ctgctttcga cactatggtt      180
ttcgtctctt tcttctgccg aaacggaaca gatcggacaa gcgcgccaac tttcgactga      240
tcacaagccg ataccggctc ccgttatctc tccttcgagc agattttcat tgttttcttg      300
tggaagagtt tgaggtgctg tgctcctgat ttgtccagac ggtctccacg gatacgttgt      360
ccaccaaagt cttttcctta ttggtcggca catggagccg gaagcgacag atcctccgat      420
cacgacacgg atcctgttgt ctagaactgt ttgctgaagc tgtacgtgaa gtccgtatat      480
gtaccgccc atcggtgcca tcgtgacttt ccataccgat gttcagtcg gagccatcga      540
taccttgccc aaagcactgt tgatcattcc ctgagcatag ctgctgaggc attgtcaaaag      600
ttgaaccac tcgattgcga agccaaataa gagcctgtgc caagagtccg atggcctgct      660
tggaacgctc ttccggcccc atacttycag ttgggtttgg atagagaagt cctccggtgc      720
ttcgacatca aacacaaatc catattcttg agcgtttctt tgacgatgat accaacatcg      780
aatcacctt tctcgacgtc ttgctaccgc tctccatcac atcggcacgt actgctgcac      840
tgctttgaag ttgacgtaag gctcttgctc attgccgctc catgtacgta gctcgatggg      900
tcgatatgta agacctgctt acccacgacg ggagcgtata ggcgatggtg ccgccaccac      960
tcatactgta ccgtccggtc aactcatttc cccgtaagcc ggcatagtga aagtcattg      1018

```

(2) INFORMATION FOR SEQ ID NO:1255

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 507 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1255

cgcaggacga	agtcgttctg	attcagcttc	catgccagga	agagggctga	gtcaccttcg	60
caaattcggc	cggctggagt	cgcaacggtc	ctatcacgcg	cacgaatgcg	agccttttat	120
atccggagct	atcagtatgg	tcagagcaaa	agccccaaca	tggcggcata	gaagacggga	180
gccagcgact	cgaaaaatcc	gtctccatga	gcagaaccat	aaagcctatc	accaccgcga	240
gaccgtccac	aggagctgca	tcacgggacg	accgcccata	atgaaaaggt	gggaatgtcg	300
aagtcgtaac	ttgctccgca	gacagcaaac	caaccggcca	cgagagcagc	agatacagaa	360
tgatgggtaa	accaatcgat	ccgtccctta	tatcgncttc	gatctctctt	aaaagacatt	420
gctgtagtga	attgcagtgt	tgacatcttc	gtggccacgg	cttcgncctt	cggagacagg	480
ttgccttcgc	gagataatac	ttcatca				507

(2) INFORMATION FOR SEQ ID NO:1256

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1131 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1131

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1256

tatgaaacct	ctgcattggc	gcgaaatgaa	agaggtcgat	cccaatcgat	aacccttata	60
gatgctcgtc	ccagacaggc	ctacgaagta	gagcatatcc	gggagcaatc	agcaatgccg	120
gtggaggaaa	taagggcacg	catagggaaa	ttcctcacga	caaaccgata	tatgtatatt	180
gcgccgtggg	gatgaggggt	atttcgcctc	gaacatcctg	agacaatgtg	gtttctcaaa	240
tgtgcaaacc	tgatcggtgg	ctatcgcttg	tattctacca	taacggcaga	ctacgttctg	300
ccggccaacc	tgccaccgcc	caacttcctg	caaaggatag	tcctcttccc	atacacaggt	360
accggagggtg	gatgcctgtg	gcatgtcctg	tcggggccga	tcctcaagct	caaacaatcc	420
attgacaaa	tagctgtagg	aagcagctct	gcacccctgg	tactgacccc	ggatttgctc	480
gtgatgctca	gcctgggtgcg	acacgaccgg	acacaatctg	atccggcagg	agaccataag	540

ggcaaataca	aagtgaccat	cgaaaagact	gcttgcaagg	aggaaggccc	tgcgtgaacg	600
agactccatc	caaaggcaag	acattcattc	tcttcaggat	gatctggaca	aggctttggc	660
cacattcgta	ttggccaacg	gagcagagcg	atgggacagc	cggtgactat	attctttact	720
ttctgggggt	tgaatccatc	aaaaagcctc	acgccgtcaa	agcgaagaaa	gacatttggg	780
gcaaattgtc	ggtatgatgc	ttccgaagaa	cagcaaaggg	ttaggactgt	ccaaatgaac	840
atgttcggct	tgggagcgaa	gatgatgcgt	atgggtcatga	agaaaagcat	gtggactcac	900
tggagagcat	gcgtaaacaa	gcgttggaaa	aggtytagag	tttatagcct	gtcagatgtc	960
catggatgta	atggggatca	tcgggaagaa	ttgctcgacg	aggtaagtat	cggtggagtt	1020
gccacctatt	gaatagagca	gaagaggcca	acatcaatct	attcatctaa	atttgtgcgt	1080
aacaatcaat	cgaggctacg	gccttcagcc	gatggaaaat	gtagagttat	c	1131

(2) INFORMATION FOR SEQ ID NO:1257

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 538 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...538

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1257

ctgtgctaca	gcagcagtat	ggcctgatca	ccctgcagat	gggcttgggt	cggtggcata	60
tccggtcaga	atggatgtag	cagatctggt	cgtcatatcc	tgacgatatt	cacactcagc	120
tacttagctg	cctattatcc	tgtccacact	tcataaatcg	cagactgaaa	aatagctgac	180
gaaaggcctc	attcgaaatg	aggaccatgt	gcaaaaagctt	tggaataagg	tgtttgcgta	240
tatcaagttc	gtatctttgt	agcaaaggag	tgccggctat	gccgattaga	tyttagcaaa	300
cgaactcgga	agaaaaggtac	cacgatgaca	gacagtatag	ttatatccct	acctacaatg	360
agcgggagaa	cgtggccaaa	atgatagaaa	cgtcttcgct	ctacccaaaa	ctttcgatat	420
tctgataatc	gacgatggat	ccccgacgga	acggctgcga	tcgtcaaaga	gaaacaggcc	480
atctatcccc	aagacttcat	ctggtcgaga	gacaaggcaa	attgggtctg	ggtacggc	538

(2) INFORMATION FOR SEQ ID NO:1258

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 597 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...597

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1258

tcgcgggtag	ccttggtcgt	tttgacatcg	ggaaagctga	cggcataaaa	gccgtttttac	60
cgtcgggaga	caaggccatt	tcgctcacc	gcgacaggtc	atgaatagtt	ccggcgtcaa	120
atgctctccg	gtattcggtc	cggctgaggg	gtcatagcag	ccgaaccaat	gatgcttgca	180
gccatcatcg	aaaagatttt	ttgttcattg	tgggtgattta	ttactgtatt	gcgtttttatt	240
gtggacgaaa	atacgaaaga	aactcgttat	ccccctcttt	aacgagagtt	gaattatagg	300
agaacaaggt	ttgtcggata	aaagtgtacc	gcccctgaat	gaagcatcga	tgcaatcgct	360
atcgggtcga	taggcaagac	tcaatatgct	atgcttctgg	catacgaata	tcttcacgta	420
aatccttcat	tacagtacgt	ttgaagaata	ttcatttttt	taccggacag	caataaaaaag	480
aaatggatcg	tctcagccgg	aaaaagtttt	tctgcagtac	agaaaaagtt	gaaagctatc	540
tgcaatcttt	atcaaaggtt	tcggatatat	aaacgaagct	ttcggatagt	atccaag	597

(2) INFORMATION FOR SEQ ID NO:1259

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2627 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2627

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1259

tattcggaaa	ggtttgtagg	cacagcatal	aatggagcaa	aagttcaaaa	agaattgcag	60
caatggatgc	gctatancaa	gaagcatcaa	gatgcaacag	agacggactc	agctatgccg	120
tattcgggtgc	acccaatctg	tctcgctcat	tgcaaaggcc	attatcaccg	acntcattaa	180
tgagaagtca	cagaatgaaa	tgatagaaga	aagatagcct	cctcttctca	ttttgttttg	240
tttacacttc	gaacaatacg	gtggtgcaat	ggataaaaatt	ggggagagca	ttggacatat	300
cctgctcaag	gctacaggta	tgggtatttc	gcatgcttat	atgaccagcc	caatgaggta	360
cagggccttt	cgggaaaaat	ggcagaaaata	ctggcatcga	agacgaatat	cctacgggttc	420
tgatacagatt	gggatattgg	ataagatgcc	gtattcggtg	agaagaagtg	tccaatcctg	480
cattatccct	attccttctga	ttgaaagaat	caagaggata	caagcctcaa	aggtgatcca	540
ccgaaaaatc	tctttggggc	cggacagaat	gtttgagcat	ggctggcaaa	acgaagaggg	600
tgctgcaaa	acgaaacgct	tgcagcacc	tcttgagttt	cagcctttta	tctcgggct	660
tatttcttca	ggtgtttggc	gaagaaccga	gcatggcacg	gtatagctcc	atggagtttt	720
cttcacgatg	gaatcgtggc	cttcgttgta	cttcaccata	tagggtactt	cgaatccgcg	780
ggcagcagtg	ccgttacgat	ctgatcgac	tcgttgatat	tcacgcgcgg	gtcttggttc	840
cctgtacgac	gaacagtggc	ttattgatct	tgtcgatctg	gagaaggggg	acacttcctt	900
ggcgatagct	gcttctctcg	gattgtcgag	gcgtaccaaa	tttctctgac	catttcttca	960
aacggcttcc	aatattcttg	aaggagtcca	agaagggtga	aatgttcgat	acacctacgt	1020
aatccacacg	caggcataga	gatcgggtgt	tttcaccaga	cccatcagcg	tggcataaca	1080
ccgtggcttg	caccgtatat	ggcgatctct	tcaggatcca	cccaacctgg	ctgatagcat	1140
agcgcacacc	gtcctccaca	tcgtccatgg	ctttgcaccg	atctgtttga	atccggcacg	1200
gaggaattcc	ttgcccgtatc	cgcctagatg	cggaaattga	cttgcagggg	ggcatatccg	1260
cggctggcga	agagtgggtc	tcgggattga	agccccatga	gtcgcgtatg	ccttggggggc	1320
ctcatgcgga	ttgacgatca	gggggtacttt	cttccctctg	agggctgctt	tcgcagagtg	1380
ataaagccat	ggatagtgg	tccgtcgcg	ctcttgaatt	tatggggcgc	atctcggcca	1440
tatcttcttc	cttgagctga	ggcatcaggt	atagaggagg	gtaaaacttct	tggtgcgcgt	1500
atcgaactgg	tagtaggtgc	gtatagcttg	tcgcttttga	cggcgataag	caggatgggtc	1560
tcacatcttc	tgatcgcacc	acggagaatt	ctttgccctt	gaattccttt	tccatcactt	1620
gtgcagctct	ttgtaggtgg	cacttacggg	tacgactacg	gacttcgcgc	ttcgtaggcc	1680
atgaggtcta	tttcgtagtt	tctcttacga	gagagtgcag	gccgctgacg	tcgtagtctt	1740
cgttggcgaa	gatctcgcg	atgacttggt	ctgcttcagg	tcgtagagta	cgatacaggt	1800
cttgctcgctg	tccggttggt	cagtacatag	gcttcgctct	tggtttttga	ggcatagttg	1860
aagcgatgac	tccgaaggtg	tcgtcccagt	gtgttttctt	cagcagacgg	actcgcctgt	1920

agccaaatcc	ttgtagtaca	actcggattc	gatcccgttt	cgaggcggct	gtatccacgc	1980
agttcgccgt	ccttgtcgaa	ctcgtaacct	gaatgggggt	ggccgcaccc	ttattctcgt	2040
agagctgggt	cagctcgctg	ttactacatt	cagtttgtag	ggttcgaaga	tctgcggatt	2100
gtttttgtca	tggatatgat	catgtagtcc	ttctgctctt	tgagcatggt	gaggatgaag	2160
ccttcactcc	gtcaaagggg	gtgagatcgc	gggtattgct	gccgtgatat	tcgaagcaaa	2220
gaggtgatat	ttctcattcc	ctcctttgtc	catgcaaaga	agagacgttc	gtcgttgatc	2280
catccgtagc	ctttgatcag	ttctcctttt	cttcgatggc	acgcttgacg	gtgccgggtg	2340
caatttcctt	gaatagacat	ggcgtttgcc	ggcatcgtcc	ttttccatgt	atgagaggta	2400
ctgccgttgg	ggcttagctg	aaaagcggaa	gccttgggtt	tggcaaagta	tcttctacct	2460
tgtatttgta	gttgcccttg	tccaaagctg	ccagtgccta	agctcttctt	cggtcgaagg	2520
caaggctgta	ttgccgggca	atttggtatc	aatcgttgta	gcgtaagcgg	caggctgaag	2580
cccatctgct	ctacattcct	tctatcgtat	tgccggacag	ggtgccc		2627

(2) INFORMATION FOR SEQ ID NO:1260

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1431 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1431

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1260

tccccctggat	gccatcttgt	atgctaaaga	aacagcttca	tgcacgaga	tgcacgtgca	60
atccgcgaga	tcttgccatc	gaagaatttg	tggagttttc	attatctatg	cccaaaaaga	120
tcagtcacac	gacttttagac	aataccaatt	ctctatatct	gtatagtcac	tgcctttgtc	180
tgtccccccg	agaatgggat	tactctagtt	ttcatgctct	ctagagcata	gcaggtagaa	240
tttacttctg	agctttggag	tcattgatat	aatcgacacc	ctttacgcga	gcaacttttc	300
cagtcgatgc	ggtacattct	tgaatccctg	caaggcttct	cgatagcctc	attcttaata	360
tccatagctt	tggcagcaat	ggcagttgcc	atgcattgtg	cctggttggtc	atgccggaca	420
gagctaaaag	ttcctcatcc	aaacaaaagg	tgaattaaga	ttcatgacaa	ccaattcgtt	480
cttttcattg	tccaagcagt	tgtattatcc	gttcgagctt	ccattgcgaa	cggtagaagc	540
gggctacagg	aggatgttcg	gctacccatc	ggctgataaa	aggatcatct	cccagtagat	600
gaagcaatcc	tcgggttgct	gattccgagt	gattctcttt	tcgcttctgc	ataaagctcg	660
aatcggtgat	cgtatcgatc	taaatgtccg	gtgtaatat	gagcagaatg	gccacattag	720
ccctgaagtc	gtacagttgt	ccagttgaaa	actgctcaac	tctattacat	aataaggatg	780
aggacgtaag	cgacctgtct	ggccagacta	aaaccgacat	tgcctgccaa	accacatcca	840
aaccggcctt	acagagcggt	tgatacaacc	acatggttgt	tgtgtcttgc	cattactacc	900
cgtgatgcac	accataaatg	catcgggtga	agtccggcga	actctatttc	cgaaacgata	960
cctatctctt	tggcaacagc	tgtcgaataa	taggagcagt	gtcgggaata	cccgggcttt	1020
tgataatttt	tttgcttcga	ggattatcgc	ctctgtgtgc	ctaccttctt	cgtacgggtg	1080
gcataatcgg	taagttcttc	cttgattttc	ggggctatct	ttccgtatcg	gatacaaaata	1140
catgcagacc	tttggttgga	gccaaaagag	ctgctctact	ccgctttctc	ctgctccgag	1200
aacaactata	tcataatttc	atcggccatc	ttcccagatc	gttattttatt	cgttatcgca	1260
tcttgagtgt	tgctttgtaa	ttgcagccat	gataatccct	acgagccaaa	agcgaacagt	1320
gatttcgatt	cgggaatagc	ctgcataggc	ttctggagcc	atgcacatct	gcggcattac	1380
cggcttttgg	aaatgggtgt	ggagggagtc	attttgaaat	ggccgacctt	c	1431

(2) INFORMATION FOR SEQ ID NO:1261

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2417 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...2417

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1261

acttgatgtc	ttcgatcgtg	tcgtagatat	agataggtag	ggatctctag	ccacggtttc	60
cgcttgcttg	cggcagccac	gctggacgaa	cctggaatcg	atgataatag	cagatgaagc	120
tgctgcgagc	accacatccg	attcggaatc	tgccccacaa	ctttgggaat	gccattacct	180
ggattttctt	tgtagaaagc	ggaataacca	aatcggccaa	agcttctacc	gagccgtcca	240
cgtecccttg	acaatgaggt	tcagctcttg	gaagttgccc	attgcacggc	gacgctgatg	300
tcttcgagcg	tgagtatctt	gtgtgtacgc	aatccctgct	cacctggagt	tgctctcggc	360
ggtttagctat	ttcgcgagcc	tctgtctccg	tcccaataca	ttgaaagtat	caccggcagc	420
cggcgcgccg	ttcagaccga	gattagtacc	ggttcggacg	gtcctgcctg	cttcacgcgc	480
tgattccggt	gttgaacatg	gctttgatgc	gtccgtgaca	ggtaccggcc	agaaccacac	540
gcccataattg	agcgtaccgt	tctgtaccat	gacagtggag	acataaccct	tcccttgtec	600
agagaagact	cgatgatcga	accgatggca	cggcggtagg	attggctttc	agctctaaga	660
tatccgcttc	gagcagaacc	ttctccgcaa	ttcgggtgatg	ttgatgcctt	tcttgccgga	720
gatctcctga	ctttgtatct	gccaccccag	tcctcaacga	ggtagtccat	gtttgcaagc	780
tgcctttgat	cctttcggga	ttggcagccg	gtttgtctat	cttattgatg	gcgataccat	840
cggcacacct	gcgcgtgaag	catgattgat	ggcttcgact	gttgtggcat	cacatcgtcg	900
tcagcagcaa	cgataatgat	ggcaatatcc	gaatcttcgc	accacgggca	cgcatagccg	960
taaaggcttc	gtgtcccggc	tatccaaaaa	tgtaatacgg	cggccactgg	gaagtttcag	1020
accataggcc	cgatgtgctg	gggtgataccc	cctgcttccc	cttcgatcac	attcgtatcc	1080
taatgcggtc	cagtagcgaa	gtcttacccg	ggtctacgtg	tcccatgccg	taacgatccg	1140
aggacgcgca	acgaggtctt	cctcattatc	ctcttcgggg	caatggcttc	taccaaatcc	1200
gcgctgacaa	actccgtctt	gaagcaaat	cttcagctac	gatattgatc	gtttcggcat	1260
cgagacgctg	attgtaccga	ccatcatacc	gatactcatg	caagtggcga	tgacttcggt	1320
cacgggacgt	ccatcatatt	ggacaggcca	cttacggtaa	cgaattcggg	qacttcagtg	1380
tgtgtctgct	ttcgctgttc	agctccatgg	catcctgagc	tcacgggaag	ccgcatcacg	1440
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cgtgccagcg	tcctctttat	tgtctctgta	catcttcgtc	cgagatctcc	accttggtg	1560
ggagagacga	cgtctgttgt	tcttgccggc	tcgggaagcg	ttggactgct	gctgagcgga	1620
cggttgttgt	tcttattgcc	ggacgaatgg	tttctctctc	cggcatacgt	ttgccctgct	1680
ctccgctcac	ctttgccggc	tctttcttga	catctcggca	gctttgttga	tgcgcttgcg	1740
tttcttcttg	ccatcggcat	cgtttgctcg	cgctggcggt	cttccttcgt	cttttttttg	1800
ggacgcgtgg	atgattgatc	gaggagaggt	ctatctttcc	gaccaccttc	acttgtggct	1860
ccgcgtgttg	gtcttcagac	ggaaaacttc	ttcgggtgtc	tcttttttct	catctcttga	1920
gccggaggag	gtgtttcagc	ttcttgaggt	ttctgtgtca	gaccgggtgc	tgtggtttat	1980
ccacagggtt	ttcgaccggc	ttggcaacgg	agccgcctgt	acaggctcct	ccggtttggg	2040
ttcctcccgt	ttaggtcttc	ttgctttggg	ttttcttctc	tgggcttate	ttccttgacg	2100
gggacgactt	tgtttctctc	tttacagggt	cagtttctct	tgccgggttg	tcctcagcac	2160
ggtgtcaggc	tccttgtcct	tgggcgaagg	aaccggttca	gccgggtttc	ggtctctact	2220
ttccctttga	tcgtaaaagc	aggtcgcatt	tcttaggcac	ttccgtagct	attacctgag	2280
cttctttcgc	tgccattccc	gcgtttcttc	tttggcggac	ggagcagatg	caggagtgcc	2340
ttgcttttgc	ttacgaatct	cttgcaaatg	cgctcggcct	cacccttggg	cagcgacttg	2400
caaattcggg	cagcagc					2417

(2) INFORMATION FOR SEQ ID NO:1262

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 722 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...722
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1262

```

ttttctctga taaacgatac gaacttgggc gatgtcggac gctatcgtac aataagaaac      60
tcaatttgaa tattgatcct gatatcaaag tgcttgacaa tgaagatatt attgagatca      120
tcaagtatct tattgagtta gtaaattcaa ggcacagta gatgatatag accacttgtc      180
gaaccgtcgt gttcggctgt cggagagcag ctttacaacc aatttggtat tggtttggcc      240
cgtatgccag gacagtacgc gatcgaatga atgttcgcga taatgaagtt ttcaacctat      300
cgatttggtc aatgctaaga ctatttcctc cgttgtgaat tcttctttgg caccaatgcc      360
ttgtcgcagt tcatggatca gacaaacca ttgctgaaat aacgcataag cgacgtctgt      420
cggcattggg ccccgagggt catcgcgcg aacgggcccgc tttgaagtgc gagacgttca      480
ctacacgcac acggtcgtct atgccctatt gaaacacctg aaggacctaa tatcggctca      540
tctcctccct ctgctgtata gccaaaatca gtgatttggt ttttattaaa caccataccg      600
ggaagtaaag aacggcaaa tagatttctc cgacaatgac tgaaatacta cacggcagaa      660
gaagaggaag agaagaccgt agcacaggga aatgcgcctc ttgacgaaaa tggtcgattt      720
gt

```

(2) INFORMATION FOR SEQ ID NO:1263

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 659 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...659
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1263

```

gaccgtcctc tcgaagccct cggacagggc aacctcgagc tggccgagca gcactccgtc      60
aggccatcaa agcctatccc gacttgccct ccggtatccc ctgatgaaca acctcgggtc      120
catccagcag agacagggca agccggagaa gcgctgctca cctacagcgc agccctgcaa      180
aagctccctg acgacagctc ctgcgcacga acagagccat gctcctgacc gaaatgggac      240
gaacgacgaa gccatattcg actacaacga actactcagg gcagagccgg acaagagatc      300
ttccactacg gcagagccat gctctatctg gccaaaggaa tgtcggcgat gccgagtcgg      360
atctggaaga aatcctccgc gtcaatgact cccgctcaaa gcccgctctc gcacgcacct      420
ggtggcaacg atgaaaggcg atacgacaaa gccgaacggc tctacaacta cgtgatagac      480
aaactcccga aaacgccgca gcctacgaag ggcgcgcccc cctcttctcg aacaagggat      540
gaaaggctac gccctgcgcg acatcaacaa agccttcgaa tacgccaccc gcctgccgcc      600
tccctcttcg tgctgcgagg cgagatcaac gccgccaagg cgacaaggaa agccggcgg      659

```

(2) INFORMATION FOR SEQ ID NO:1264

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1567 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1567
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1264

```

ccaggacaat gcaaattatt tccatcgtct gcgagaaatt acccttgaat cagcaacacg      60
aagttggtgc cggcctctca acttccaaag tattggaact gaacaaagaa tctctgcttg      120
ctctgatcga agaatcctta tacggcacca tggtagagtg acttccgctg cgaacgggaca      180
gcctctcaaa tgccagtctt gatagaaaac catgacaagc gcaactccga tgtttactcc      240
gatgcaccac aggtactact gtacgtccta tcaaagccgg cacttatacg gtgaatacaa      300
agccgagggg tatcctgagg caactcgtac cattacgata aagacaaaga aaccgtcatc      360
atggacattg cattgggcaa ctccggttct ctccgtgacc cgatttcaca gcttctccta      420
tgaccatctc agtaggcgaa acgtccaatt ccaagatcaa acgacaaata accccacgaa      480
ttgggagtg ggttcgaagg cggacagcct gccatgagta cagagcagaa tccgctcgtt      540
cctatagtc tcccggtcag tacgacgtta cgctcaaagt gtggaatgaa gtggttccaa      600
cacgattacg aaagaaaaat tcatcactgt caatgcctta tgcctgtagc tgaattcgtc      660
ggtaccccca cggaaataga agagggcaga cggatatctt ccaaaaccaa tccaccaatg      720
ccaccaacta cgtatgatat tcgatggcgg cactcccgtc accagtgaag acgaaaaccc      780
gacttgcttt acagcaaagc cggccaatac gatgtcacgc tcaaggcgat caggcttccg      840
gtgaaacggg gaagacgaaa gaaaaataca tcaactgtcaa gaagctccgg tccctgtctc      900
ggtagccgac ttcgaaggaa cacctcgaaa ataaagaaag gcgagacagt tactttcaaa      960
gacttgctta cgaacaatcc acttcatggc tttgggtgtt cgaaggcggc tctcctgcca     1020
ccagcacggg caaaacccgg tggtcaccta caatgaaaca ggcaagtacg atgtccagtg     1080
actgccacca acgagggcgg aagcaatgtg aagaaagcag aagactaatt gaggttatcc     1140
tcgatgacag tgcgaggac atagtggcac agacggatc gtcattcgtc cgcaaaacgg     1200
aacgaagcag atcctcatag aagccacgct gctatcaaag cgatcgttct ctatgacatc     1260
aatggacggg tcgtctcaaa actactccga atcagctccg ctcgaccgta gatctttcca     1320
tccgcccga ggaatctaca ccatcaatat caaaacggaa aaatccgctc gccggaaaag     1380
atccatatcg ggtaatccga gatctgctac acaagaaaag gatgtccggg ggggcatccc     1440
ttttcttttt gtcatagcaa gctcgtggag attattcggg cgggtgtggg taaagcagat     1500
acttcttccg caatttgtgt acttgtcgag atccgattgc caagaggctc ggatctgctc     1560
ttctgtc

```

(2) INFORMATION FOR SEQ ID NO:1265

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1018 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1018

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1265

```

caattatacg caggggttatt gtatctcatg tccttcgggt agtaggcaca tatcctgcta      60
caggacgggg aaatagccga ctttctctcg ataaggctct cctttttatc ttacctttgt      120
gccgaagaac tcaatcagct attacaaatg gatattgccg tagtcggtat cggctatgtg      180
ggactggcca gtgctattgc tttgcggagt tgggagcaaa tgttcgctgc atagatactg      240
atagaataaaa atcgagcagc tgaacagcgg gactatcccc atctatgagc cgggcttgaa      300
aaaatgatag ctcgcaatgt gaaagccggc agactgcgat tcgaacggag atagagcaag      360
ccgtgccgga agccgatatt gtattcatag cgtgggtaca ccggccggcg aagacggcag      420
tgccgatatg ggctatgtac tgatgctgcc cgtagtatcg gccgtgccat gagccgttat      480
attctgatcg taccaagagt accgtgcggg tgggategta ccgactgac aggaagggtt      540
acaggaagaa ttggacaagc gtgagggtgt gattgacttc gacatagctc taatccggag      600
tttctgaaaag aaggaaatgc catcgatgac ttcatagaacc cgatagagtg gtcgtggggag      660
tggattcggga ccgggcgcgc gaactgtcac aagcctttat aagccgatgc tcttaaacia      720
tttccgtgtt cttttatgga cattgcttcg gctgaaatga ccaaatatgc tgccaatgcc      780
atgcccggcac tcggatcagc tttatgaatg atgtggccaa cttgtgcgaa cgggtgggagc      840
agatgtttcg atggttcgtc tcggtatcgg ttccgattca cgataggcag caagtttctg      900
taccggggtt gcggatacgg aggatcttg tttccaaagga tgtaaaaagc actgatcaga      960
accagcagaa gacaacggct tcgaatggaa gtattggaag ccgttgaacg tgtgaacg      1018

```

(2) INFORMATION FOR SEQ ID NO:1266

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 791 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...791

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1266

```

ctctagagga tccccaaact ttttcagtac acgtcagggg ttattcttta tcttgaattt      60
tgctcaaata tcatgagaaa acagatgaaa ttgcgttccc attttccctt ttaccacctc      120
cgagtgtcaa cttttttcag tacacgtatc ttaaatgcgg taaaatctgt cacttcgata      180
aattacgagc cgaaaagctc ggattgtggt ctgtaaatcc tgagaaaacg gggcgagaat      240
tttttgcttt ggcgcgtaaa aattttacct cccgagccaa aacgcaaaaa attagcgcca      300
cgctttcatg gctgtaaaagc cggcaatttt tggagcctga acctcgtagc gggggaggga      360
gtagcgatgt gtactttcgt ggacttccga gtcaggttca ggctctatat tgagccgggt      420
gtcccggtgt atcaggatatt gttgtcttag ggtgaaaacg ccgattgcag ggcattaagt      480
cgccggctct agctgtcggc aacctatagc gaccgatgga aacctctctc cgaagtactc      540
ttgcagagta atgaataact ctctaaagcc ggctttcgac aggttttctt gcacctgagt      600
ggactatact cgtattttaga gaccattgca caaagagctg ttctttctgc tagcttggtc      660
ccggtgtggt tttgaccatt ctgcgtcgtt tgcagcctgg ggactaatat tcaaggtgaa      720
gaacacatct aaatgtcaaa aacacaagga aacttggttc gtattggtga gctgggattg      780
tgcattggtc c

```

(2) INFORMATION FOR SEQ ID NO:1267

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 323 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...323

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1267

ggaaacaaaa	cttaaagcat	ccttggntac	atcttccttt	ttgactatag	taaactctnca	60
atttgaacat	tcctcccgag	gaacttttga	taatctctna	gtaagggaca	tgtacaataa	120
catacttgag	caattcccaa	aacagatctc	tngntgctct	cgtgatgata	ctacatgtgc	180
ttncctataa	gttttttata	ggcaggcatc	catttacttg	ctttntaag	ccagtattnt	240
agacgtagga	ggcattatta	agcataaaca	tacttntaac	gntcttatng	tttaccatga	300
aaganttatt	ctntacttaa	aaa				323

(2) INFORMATION FOR SEQ ID NO:1268

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1050 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1050

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1268

actctagagg	atccccggct	ccatgggggc	attgccacta	ccgtatgtcc	catgactaca	60
cccttcagtg	aggggatgcc	gagaatgctc	tccactactc	tcgtgtaatg	ccggggaata	120
ttttcaggat	cacaacgttt	ctgtccattc	cgtctggaca	ctgagggcgg	catcgccccc	180
tcggtctgct	atcagacatc	ctcgtatcga	atgtcgatac	cggcataggc	caagggtgaa	240
aagtttatga	agcaaaggcg	tcgaactggt	ctgcactgac	tttcgatgta	cgatgccacg	300
catcagatag	ttgtcgaaga	aaatacaaac	ttccggtacg	cggcatagcc	gttttgtttg	360
gctgcagcaa	tttcgatagc	ggtgatgagg	tttctttgcc	atccgtacga	agggtagcca	420
taggcagctg	tgaccctgtc	agattacggg	tttctgcaga	tcattccagca	taaagcttag	480
agcagaggcc	tgtaggccat	cgtatcagtg	ccgtgtagga	tgacaaaacc	gtcgtaggcc	540
ggtaattctc	ccgaatgggt	tcggccagcc	ttaccacaaa	atccggagga	tagcggccga	600
gtcgaatgga	ggatcaaaact	ggatggagtc	gattttgaac	cgaatttttt	cagttccggc	660
acattggttt	ccagatattt	gaagtcaaag	cttctaatac	tttcgtctcc	ggattctcaa	720
tcataccaat	tgtccccccg	tatatatgag	gagaatcgca	gaacgtcctg	aagcagattt	780
agttgcatta	tgtgggtgag	taaacaaaac	ggtggcgggt	ttttccttcc	ggctccaaga	840
tcgtacagcc	atcggactat	ggctttggat	acggccgggt	cgaagataaa	taaaagctcg	900
ttcagagcat	gcttttacggc	cagagcaatc	gttttgaaat	gttaacacac	atataaacct	960
gatgatgctc	catccaaaat	agcttagcac	gatattgtct	gagagcgtag	agaggaaaac	1020
gatcaggaga	aaagtcaaga	ggataactct				1050

(2) INFORMATION FOR SEQ ID NO:1269

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 642 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...642
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1269

```

cgtcaatggc aggggtggcat ctacctatcg cgaagaaggc gacgagtaca tattcgcggtg      60
cgcttggccc ctgagttcag gcgatcattg agggacttga aaatatectc atttatacgc      120
ctcagggcaa aggtgttcgt ctgggagggt gggtaaaata gaagagctgt acactcctcc      180
caccattgaa cgaaagatcg tcagcgtgtc gttatcgtag cttccacggc tgtcaaagga      240
gctgcttgag cgatttggtc gaagtggcca aagaaaagat tgctcaactg gagatcccga      300
cgggattgac tacaaaatca gtggtacata cgaggaccag cagagacatt tgcagacttg      360
agcaccctta tgctgctgat cgtgatactc gttttatcgt catggcagca cagttcgaga      420
gtctcgtcga tccgtttgtg acatgttttc cataccgttt gctttcacia ggtgtcatag      480
tcggtcttat attacccaat taccactttc agcgctatgt cctttatcgg tctgattatc      540
tgatgggtat cgtgggtgaa agaaccggta ttgtgctcat cgatttacct cgtctgtgtc      600
gcgaacgcgc tatgggcatt ctctctggcc gtagtacagc cg                                642

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(2) INFORMATION FOR SEQ ID NO:1270

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 512 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...512
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1270

```

cttcagctgt ttcgctcaca gctacaacga tttccgtata gatgcggagg tctttgtaac      60
agggttatac tggagcggag caaagtttac tacctgacac gtacatcgcg caggatgaaa      120
ggatcgctca gcgtagcgat ttcgcccgga agaacttgct ttcattatag ctctgtccgt      180
acacgtaggg gatttgtcag gattttcagc gcgagagata acaccttag agggagcgat      240
cagcaatcct tcttttcgat gaatttgaa gaaactacct ctaccttcat cgcagtgttt      300
cagaaaacgc aagagaacgg gaaagaatgg gcaatatagg cgtcctttct ccgagatatt      360
gacaccttcc gtgaaggtag gcacctgaac taccctttgg aagtctgttc gcctgtgaac      420

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tgaagattgt ccatacggaa tgcaccttgg acatagactg ctcagcggag agcagtcgta
 cttgtggggt cgaacgcgct ctgccggctg tg

480
 512

(2) INFORMATION FOR SEQ ID NO:1271

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1063 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1063

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1271

ttcgccaccg	gctcggcaag	cctcgatcag	gtagtcgtac	gagagaactc	accgaccttt	60
ggagcatcct	cctgttcctg	ctatccttcc	ttgtcacctc	aagaagtggc	tccatcccat	120
cctcacgata	ctgcttgccg	gtctcggggc	ctgctgatat	acggcttctg	aaaacgagct	180
atgccataaa	tccaatatga	cacaacccat	tccggccggct	taggatttcc	aagaagggct	240
ttatccaacc	gagatcgaca	gatggagata	ttcgttgaca	gggtacgaac	ctgcggcttt	300
tatctttaga	gcttcctaata	atcttcaaga	cggttcancc	aactctcaag	aaacgtntgt	360
tggtatgcct	tagcaattcg	cgttcggtgg	cctgcgtccg	atgctatcct	cgtacttttt	420
tatgcttctt	gctgtaattg	ctctaagaac	tcgcgacgtg	catcgaagat	ggactcaaac	480
agctcatcgg	atctgcacta	ttgacagcct	gtaagggtctt	attgccact	attccatcac	540
ctgcacacct	agtatccttt	gaggaataac	aataccatac	ttgcctgacc	ccaaacccaa	600
tgcacaagga	tattagccac	cttttgagac	tcgattagtc	agctttccaa	cgatcccaat	660
aaaatggttt	caagactcga	ttcaggcgct	atcatcggtt	agcaacttga	gatcctcaac	720
atcgatgtct	ccatcccgct	tttgtcatag	ccgactcttt	tccaagtgcg	tattgtttaca	780
ccttgtttgt	tgccctcctc	gcacgggcag	gatcatggac	aaaaccacct	tccattttcaa	840
tatatatggg	agtaataact	taacatttgc	catctttctt	cactttcttg	agttcaacat	900
aaatcaactt	ccaaaagcca	ttcngcatcg	tttacaaaaa	gctcgttcca	cagtccttcc	960
gtcattcctt	cgactgcatt	accttcgttt	taagcctatc	ctatccataa	ggatctattt	1020
ctctcttaag	agagtgatta	tctatgtaca	aagataagtg	ttt		1063

(2) INFORMATION FOR SEQ ID NO:1272

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 724 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...724

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1272

ccccgggtgc	ggcacaagca	tttctctgcc	aagtctacct	cggccaaagc	cgccctacgag	60
agcaagacca	agacttgcgt	aagaagcttg	cacaactttg	gcagagaatg	aagacttttgc	120
acctgaagat	gctctacagc	tcgcggcttg	aatccctatg	accagaatgc	cgtcagctca	180
ttcttcgacc	ctgaatgatg	tttggcctcg	cagatggctt	cgacatcggt	attggcaatc	240
ccccgatgta	caactacaga	ataatggggg	agaattaacc	aagctctatc	aaggtgtgac	300
ttcaagactt	ttgctcgtac	tggagatgta	tattgcctat	tctcgagcga	ggctggcaac	360
tactcaaaga	gggagggcac	ctctgctaca	tccctccaac	aaatggatgc	gtgcagggtg	420
tggagaaaag	acaaggctat	tttcgcctcc	aagactaacc	ccaagctact	tgtagacttc	480
gctggagtta	ggctctttgag	agtgcctacg	tcgataccaa	catcctactc	ttcgccaaga	540
ggccaacgca	ggacagactc	aagcgggtct	cctgaataag	aatgtccaat	tggcggtagt	600
gaattgtgcg	aatatattca	acagcatgca	acagccttgc	tttcatctcc	tccgagagct	660
gggtcatcct	atccctctac	gagcagggtat	caagcgaaaa	atagaagccg	tcggcaaacc	720
tctc						724

(2) INFORMATION FOR SEQ ID NO:1273

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5069 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...5069

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1273

aagggaatac	ctaatacatta	cttcacacca	tagtgcaaac	ttcgtagtag	nctttcaent	60
tttcgacctg	attgcctnng	atgattatth	ctccgtcttg	gctgctcttc	ccactccgca	120
tcgctgcttg	agcaggcgcg	acagatcgtc	agatcgctcg	cggaaccgac	gtgtccgctc	180
acaagggtga	cctcttgccc	cgacgctgct	tccgatccag	cgtagatcgc	agacgttggt	240
tctccgagga	agcgtctcag	ctacctcttc	gctatcttca	tgttcgtatt	ggaatcgggg	300
ttcgtactgt	acatgacccc	cagtctgttc	ttccagtcac	tcaattttat	attctccata	360
aataaaaagc	gccgaggaga	taccacaacc	tcacgacagc	ctttgttctc	aatcaaatac	420
cgcgcgtctt	agtgcggatt	attcttttgg	gccgacttgg	taatgcgctt	gcgcggctca	480
ggcatggctt	gacacgaacg	atatgctcat	tcgcaccctc	ccacatgate	tccttttcac	540
tgtgcgcaga	taagctatct	catcgccctt	tttcaccaca	gtgccttggc	tactacctcc	600
gtaatacggc	cggtgaatgt	accaatagac	tttctcgtat	agccaaattg	gttttcgatg	660
tagcagaaa	gctggccggg	acgatatcgg	caccgatagc	cggagcgatg	gattgctctt	720
ccgtatcgat	ttcccataga	gtcgcccgga	gcagggtgcc	acgatcggat	cacatccggc	780
acgctagctt	ttttgatgtc	ttcgtcgcta	tatccctgct	tagccatgcg	atcgctttgg	840
ctttgtccag	atcggcattg	aagcgtctct	tggctacgcc	gccttgtagt	cgcgatattg	900
acggctcgct	atggcaagct	cgaatagctc	tcgtcgctcg	ggccatactc	ccaaccgttc	960
tgatccattt	ccttgcgaaa	tcgtccaagg	catcaggata	aaattgctga	ggatcggcct	1020
ccgaaaattc	attcccttct	cttttgccaa	agcgatgate	tcgggatcga	gtttgcccgc	1080
aaacggcccg	atttgccgag	gatcataccc	catgtgttct	ggtcgatgct	tgccaacgcc	1140
cttcgccccg	tatcatgttg	tacacgttca	tcagggaaca	ttcttcacat	actggctgaa	1200
aggagtacc	aaaggaggat	agccaggcgc	ggccatacat	actctacctc	ttggaagaga	1260
cgtaccagta	gctgtcgatg	gtcatctccg	gctcgccctt	tcctttgagg	aacatattga	1320
tactgcatgt	acccctttca	ggtcggccat	catggatccc	atcataccgc	cgggagaccg	1380
catcccacga	gcagcgagct	cgtctctttg	ttcgacggat	catgaaatag	cccaagaagt	1440
cgtctataaa	ctcctgtgtc	aggcttcgag	tttcatgtag	gcattccatg	tgatctccgg	1500
cactttgaag	ccggcatcct	gagcatctgc	tggatgggtg	tcacatccgg	atgcacctta	1560
ccccagaat	aggctccata	gctacgtcga	tgatgtcagc	cccattctcg	caaacctcag	1620
catggaagcg	acagagaagc	cgggacctga	gtggccgtga	tattcgtgat	tacatcgggg	1680

tgcttgggtct	tgatggattt	caccagctga	cccagaaaat	gaggacgacc	gataccggcc	1740
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gtactccacc	gtggtagcga	gagaacgtga	taccaaagcg	tagcctgtgg	gatcatgccg	1860
gctccagtgc	atatttgatg	gatggaatga	tatgcgagca	tcattcaggc	ctcgaatata	1920
cgtgtgatgt	ccacgccctg	tgctttcttc	accttgtaca	cagccggcgc	acatcagccg	1980
gtacggggaa	catacgaagt	ccgttgagtc	gcggtcacgc	atgtgggtct	gaatacccgc	2040
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aacgggagct	atgcgttcca	attgatcttt	tcgtgggtgg	tacttctctga	cgactgccac	2220
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tgttgtgtac	ttgacttctt	ccttatataa	ataccgactg	tgatatgcta	aaccacaaaa	2340
gcaaaggtat	caataattcc	atagttaate	cggccgaaat	gaatttttcc	acacccctgt	2400
acgatgaagc	ggagcacccg	cgatccatcc	atttccgaac	agcccgaaatc	aagaccggca	2460
taccccgtaa	tagactgatc	gagaggtcac	aagctgatca	tcgcctccta	tagaaacgat	2520
tccggagaga	ttgttcattc	gggagtagta	tcggtttgtt	ttttgggtgc	gaaagacgga	2580
gaattgccga	gcctaaatct	caaaaactcg	aaccacaagg	aaaatcttta	cgcgcgagat	2640
ttttttcttt	tggtctgagt	tttatttttt	tctcgaacca	tcttttttctg	atccgaatta	2700
tgctttttca	tgctccgcaa	ccgctcggaa	agcaattcct	gctactgtcg	agaaaggcct	2760
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aaaaaaagat	tacctttgca	gctgttacgg	atggatgggg	aggcgacccg	atcaaggttc	3060
ctcctttttg	tttatcccaa	tgtccaaaag	tacagagcga	gatgatagac	agagaacaaa	3120
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acatcgggca	acaggatcct	cgtagagctg	gatagcgccc	aaggagttag	cataatgagt	3240
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ggaagtaggc	tcgaccgggc	tgacgtctcc	tcgaaagtga	tcgcgccagt	ggagaactgc	3360
attgatagcg	agctgtccgt	atgctaacca	atgggatgaa	ggaaaccggt	cgccctatta	3420
ctgtcgtctc	gaagctatca	agctggaagt	ggtagcgtg	gtgaagccgg	aaggagccag	3480
cgcaaaaagc	ctgaaactca	agagttgaca	atagctatgg	ccgacatcaa	caggccgtgc	3540
gtatcatata	agcaaatagta	aaaaagaatc	aagagaaaca	ccataaagag	agtcctatgg	3600
ccaagaagca	agagacgatc	agcatgtaga	atcgctggca	gaattcaaag	agctgaaaaa	3660
cattgacaaa	gagacatgat	caacgtcctg	gaggattcct	tccggaacgt	tctggcaaaa	3720
atctcggatc	ggacgacaa	ttcgacgtaa	tcataaatcc	ggagaaaggc	gactcgaat	3780
atggcgcacc	cgtcaggtag	tagaggacgg	tgccgtagag	gagaaagtgc	cgaagtgtct	3840
ctgtcggatg	ctcacgagat	cgaccccgag	gggaggtcgg	tgaggaaagta	acggactccg	3900
tgaacttcgc	ttcattcggt	gccgtgccat	tctcaatctt	cgccaagctc	tctccagcaa	3960
gattatggac	ttcagaagga	aaacctgttc	aatacattca	cggaaacgtat	cgggcagcca	4020
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cgaactcctg	atgccgaaga	gcgagcagat	cccaaggact	ttttccgcaa	aggtgagacc	4140
gttcacgcgg	ttgtggagcg	cgtgggaacg	ccaacaacaa	tcccaagatc	atcgtatcgc	4200
gtacaagcgg	agagtcctca	agaggctttt	cgagctgaat	gtaccggaga	ttgccgatgg	4260
cctatcacca	tccgctgcgt	agcccgatc	ccgggagaga	gggccaagat	ggcgtagagt	4320
cttacgacga	tcgtatcgac	cccgtaggag	cctgtgtggg	ttgaacggtt	cgcgcatacg	4380
aggtatcgtg	cgcgaactga	gaggcgagaa	atcgacgtta	cgagtagcac	gacgaacacc	4440
gccctcttca	tccagcggga	ctcagccctg	cacgtatatc	ttcgattcgc	ctgctcgaag	4500
cagagcatag	gccgaagtat	tcctgcgccc	cgaagaagtg	cctttggcca	tcggaaaaat	4560
gcctcgaata	tcaagctggc	acgggttatc	agatcgagt	ttccgtgaca	tcgaccagt	4620
tagacgat	ggacgaagaa	gacatctatc	tggacaattc	aacgacgaga	tcgaccagt	4680
gatcatcgac	ctgttcaaga	atatggttgc	aatacggcca	agagcgtgct	cagcaagaac	4740
agagaagatc	tgacaaagag	acggatttgg	aagactccac	catagactat	gtactcggag	4800
tctgagtgcc	gaatttgccg	atgaggatca	ggtgactgat	aatcaaagta	cgattcggat	4860
gattttgcta	atttctctgc	cgaagacgat	ctgaagcaag	gtaataagaa	gaacaaaagc	4920
agtctccctc	ccatccctca	tcttatagtc	aatcctcaca	aagggtgcagc	ataaatcaca	4980
gaagaagaaa	aggttagttg	tcaatnaaan	aattcagctt	agctaaagag	ttaaatgtag	5040
gagtaggtcc	ctcgcggct	ttcttcgga				5069

(2) INFORMATION FOR SEQ ID NO:1274

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 424 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...424

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1274

ccagacagca	tttcgatcag	ctcattgtcg	atcttcgatg	ccggcagtag	atcgatcatct	60
ttttgatcaa	tgtatcggcc	acttgaggta	gcagttcggt	gaggtcacga	ccaattccat	120
ttcacccctct	ttccacttat	gaggctgacg	gatgcgcgaa	tgaggagata	cagccccctcc	180
ttgcaataat	tgccgagttt	acatgagcct	gtccgaaaag	aggtatttcg	cccgtgccgg	240
acagacctct	aacgtaattct	ttgagtacgg	attattcgag	cgagagattc	cctgaaagcc	300
ttggtaacaa	taccggccaa	aaccaaattt	ttcccgacca	aggatcggat	cgggtcaaatac	360
ggctgcatgg	gtattgcaat	agtggatcga	gatgacttgg	tactgagcct	ttggattgga	420
acta						424

(2) INFORMATION FOR SEQ ID NO:1275

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2530 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1275

agtatcagat	tgaagccctt	ttcggtgct	ttcttcacga	tgtcgcgagc	aaatccagct	60
tgtcgtcttc	cacgatggag	aggcctatcc	gaccgcctcc	gcttttgtga	aagtataggt	120
cattccgccc	gtcaggatca	ggttatcaat	ttgttgagta	ggttctcgat	gatttctatc	180
ttggtcgata	ccttgggccc	cccatgatgg	cggtgaacgg	ccgcttgatg	tcgtgcagca	240
ctcttctacg	gcttttactt	ctttctccat	cagatagccg	aacattttgt	ggtccggctg	300
aagtagtcag	cgatcagtcg	tgtggaagca	tgtgcccgat	gcgtgtgccg	aaagcatcgt	360
tcacgtagca	gtcggccatg	gaagccagct	ttgcgtaaac	tctttctgag	cagccttgac	420
ggctttcttc	gctgcggctt	ttcttcgtcc	gaagcatcgt	cggagagtcc	gcgcggctta	480
ccttctctct	ggcatagaag	cggagatttt	cgagcagcag	cacttggccg	gctttgagct	540
ggccgctttg	tccatggcat	cggctccgat	gcagtcacgc	gcaaagagac	atccacgccg	600
agcagttcgg	atacgtgcgg	caggatatgc	cggaggggaa	ctccggtgct	acgccttttg	660
ggcgtcccag	atgagagccg	atgatgtcat	accgccgtcg	gctatgatct	tgccggagagt	720
ggggagggct	gcgcgatgcg	ggtgtcgtcg	gtgatcttaa	agttgtcatc	gaggggaacg	780
ttgaatcgac	gcgcacgaag	gctttcttgc	cggcgaaaatt	gaattgttct	atctcattgt	840
attgaatgtt	tttgcctctg	acgggagagg	ttcgtttatt	gtcggacaaa	catacgaagt	900
ttatatagaa	gagtagttgc	tttgcctctt	tatcgccctt	cggaatccca	tcgtttcggt	960
atcgatcccc	gatggaaacg	cgttatttgt	tccatgaagaa	tttatatatc	tttgctcggt	1020
ctcgagggta	cccgaattccg	tcttacgaga	cgggtttttt	gtagttgtcg	gggacgatgg	1080
acgagacttg	caacagagaa	aacagaacca	acttaattat	tcaggatatga	gcaaatttaga	1140
tttgacaaaag	tatggcatc	tcaatgccac	tgagatatcc	acaacccatc	ttacaggttc	1200
ctttttgaag	aagagaccaa	agccgtctcg	aaggctttga	gaaaggacag	cttaccgaac	1260

tgggagcagt	caattgatga	ccggtgtcta	tacgggtcgt	tcgcccagg	ataagttctt	1320
cgtatggacg	atacaacca	aaacaccatc	tgggtggacgt	cggacgaata	cagaacgaca	1380
acaaaccggt	gactccggag	gcgtggaaga	gtatcaaaaa	gtggccggtg	agcagctctc	1440
cggcaagcgt	cttttcgtcg	tggacacgtt	tgcggcgcca	acgaaagctc	tcggttgaaa	1500
atccgcttta	tcatggaggg	gcctggcagg	cccacttcgt	caagaatatg	tttatccgcc	1560
ccacggaaa	gagctggcca	actacggcga	gcccgaactc	gtggtgatga	ctgcttcaaa	1620
gcgaagggtg	aaaactacaa	agagctggga	ctgaactccg	agacggcgtc	gtattcaacc	1680
tgaccgagaa	ggtgcaagt	atcctgaaca	catggacggc	ggtgagatga	agaaagggtat	1740
gtttctctac	atgaactacc	tgctcctctg	cgcggtatgg	cttcgatgca	ctgctccgcc	1800
aatacgagca	tggcgagaag	gagacggcta	tcttcttcgg	tctgtccggt	acgggcaaga	1860
cccgtctcagt	acggatccga	agcgcaagct	gatcggcgat	gacgagcacg	gtgggacaa	1920
gacggtatct	tcaacttcga	aggcggatgc	tacgccaagg	gatcaacctg	agccgcgaga	1980
acgaaccgga	catctacaat	gccatttcgt	caatgcgctg	ctggagaacg	tgaccgtgga	2040
tgctgcccgt	aagatcgatt	cgggtgacaaa	tccgtgacgg	agaatactcg	cgtctcttat	2100
ccgatctcca	catcgagaac	atcgtgaagc	ccgtgtccaa	agccggccat	gccaagaggt	2160
gatcttctc	tcgccgatg	ctttcggcgt	attgcctccc	gtttcactct	gactccggag	2220
cagaccaagt	attacttcct	ctcgggcttt	accgcaagct	ggccggtacc	gagcgtggca	2280
tcacggagcc	tacgcctacg	ttcccggctg	cttcggagcg	gctttcctct	cgcttcatcc	2340
tacgaagtat	gcgaggagct	ggtgaagaaa	atggagatgg	tgggagctac	ggcttacctc	2400
gcaatacggg	ttggaacggg	acgggcaagc	gcctctctat	caaggatacg	gtggtatcat	2460
cgatgccatc	ctcgacggct	ccatcgacaa	ggctccgaca	aggctattcc	tttcttcgac	2520
ttcaagggtg						2530

(2) INFORMATION FOR SEQ ID NO:1276

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2518 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2518

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1276

cgatgtacga	gcgtatgcag	tttatgaagt	acttttgcaa	taaagataat	gatccctcca	60
cgggatagct	ttgtgtgaac	aaagcatcgt	gtgtaaacaa	tanaaaagaa	gagccaatga	120
agaaatcaag	tgtagtagcc	tcagtttgcc	cgtggctctc	gtgttcgccg	gttgccggact	180
gaacaatatg	gcaaaagcgg	ccttatcggc	gccggagtag	gaggtgccat	tggtgccgga	240
gtaggaacgt	agccggaaa	acggctgtcg	gtgccatcgt	cggtagtcca	gtcgtggagc	300
agccgggtgt	ctcatcgga	agaagatgga	caagcagaaa	aaaaactgga	ggccgcagta	360
cccgatgcta	cgattcagac	agtaaatgac	gggaggctat	tctggttact	ttcgatagcg	420
gtatcctctt	tgcgacgaac	tcagcactct	gagtcccaac	tcacgcactg	cgctgacgaa	480
gtttgctgca	acatgaacaa	aaaccccgac	acggatatcc	gtatcgtagg	ccatacgga	540
ataccggctc	cgacaagatc	aacgatcctc	tgtctgagag	acgtgcagca	gcgtatatcc	600
tttctggaat	tctcagggtg	tgagtatgtc	gcgcatgcag	ccgaagggcg	tgggagccat	660
gaaccggttg	cagacaatag	cacagtgcgc	gacgttcggc	caaccgccgt	gtggagggtt	720
atatcttgcc	gaatgcaaga	tgatcgaaca	agcacagcaa	ggtacgctga	agtaagcctt	780
agctacggat	actaaaaagc	ctccgactca	ccttggttagg	gagagtcgga	ggcttttcgt	840
tttgggataa	gatcctaata	tgttgtagtg	tgtccgaatc	aatccgttcc	ggcatcacca	900
taagttgcgt	atcgggatga	tatttatgca	gtagaaacgg	agataatcaa	gggtgttagc	960
aataatacgg	tcgtcttcgg	aggataaaga	ttgtagacaa	tggattcgac	cggaataacct	1020
ctgtgtcgga	caattccaaa	ttgagtagcg	tgtggttgat	actccccagt	cggccactgt	1080
cacgagtgca	ataggataat	ctctgtcagc	tataaaatca	gctgtaaata	gtccttggtg	1140
atgggcacca	tcagtcgcgc	ggctccttcc	agaaggtgcg	atcgtagcca	cgagagagga	1200
gagtttcagt	agcttgggtc	attattttgca	gtccaccctt	ttaccatcta	tctcggctgc	1260

aaagtgagga	gaagcggata	actgaaaata	taggggcaag	taagtcccaa	accatcttct	1320
tccttgtagg	gtatccgggtc	agacgacggt	gtgcttctat	atcctccgaa	gccctacaca	1380
tcccgtctgt	acgagctttt	gggtgatgac	cttttgcctt	gctcggagag	cttgtcgaaa	1440
agaaaagccg	tggcataggt	tttcccagata	tcgtgtctat	tccgggttaca	aacaggactt	1500
tagaggggaat	gatgggcata	cagtacggac	gaaagctgaa	aattttttac	cgctgttcga	1560
tctgattgga	actctggcaa	tcaaagtata	ggtagagtcc	gatgcagata	caagcggagc	1620
cttagtatat	tgtgacggat	gagacccttt	tgatagagca	attcctgatt	ccggcgggat	1680
taccatcgac	aaacatcagg	tagtacattc	cttccgtcgt	tggtggatgg	tttcggcttc	1740
ttcaaatcgg	ttttccaaac	acagtgtatc	aaacgactga	aaagctccgg	ataggcattt	1800
ccgatcacgg	aaaaactccc	tcggctcctt	cctttataaa	ggaaagggag	agatgatcgt	1860
cgctgatagg	acaatgaaaag	gatcgggttt	ttccagcact	attgcacgca	ctgatccaca	1920
ttgcccgaag	cttctttgat	gccgatgata	ttcggacagt	tgtagccaat	ctgagagtgg	1980
tttcggactt	aattattcaca	cccgttcgcc	ggggacattg	tagaggatga	tggacgtatc	2040
agtagattcg	gccaaagtct	ataatgtcta	taaatgcctt	cttgctgagg	tttggtgtag	2100
taaggagaac	ggataagatg	gcattctacac	cggtcttggc	catgggcttg	gaatccattg	2160
acgaggcggt	cggtgtagtt	gcctccggct	ccaacgatga	tcggaaccgt	cctgccaccg	2220
cctctctgac	tgtttgcaat	atcgagagc	gctcgcatcc	tcgatggtgg	gcgattcacc	2280
cgttgtgcca	agtactacga	tgtgttggca	cctcccgtta	cctgataatc	cgctaaaagt	2340
cgaagcgatt	cggtgtctacc	ccgccctttt	cgtcgaangg	ggtaatcagg	gcaaccccca	2400
tcctcgcaac	tgtgctctgt	caattcgtat	tctattttag	aaacaaaagt	aaaataatgg	2460
gagcaatgga	nttgaagtgg	gcattttacaa	ttcggagaac	tgcagaagtc	ggaaaaac	2518

(2) INFORMATION FOR SEQ ID NO:1277

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 662 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...662

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1277

ttccgctaaa	agattctatc	aaggaaagag	ccttgtaatg	ataatccgag	cttctgccaa	60
agcacggata	cgacggctat	ccgttccgag	atgattcctg	cttgtgcggc	tacgatgggtg	120
tcccttagat	tcaatgcagc	gttcaacctt	tttggtgata	tagcatcgca	tctgtgtatt	180
gggacatatt	acgcatcggt	tgccgacctc	gatcgcgaat	aacatttgtc	ccacaagggtt	240
cttgtctgta	cgctgttctc	gtaaaagctgt	ttaacagaat	cagtggggag	ttcttttctgt	300
acagcaatgc	agtaatacgc	tttttctctc	gggcgatttc	agtacagagt	gttttttcttt	360
ttttccacat	ccgaccaaaa	tcgacaatat	gataataata	atgggaaaag	tttcttcatt	420
tggctttcta	tatgcaagtc	attccgggtg	aaaactaatc	aaacatggat	aatctgacac	480
ataaatatgg	ttgtgaaaca	atattgagag	gagtgcgaag	cgtccatttg	aattattttct	540
atatttgcgg	agtcgggtgcc	ggtaaaaaag	atgaataaac	tttttcttgt	cttcggcata	600
aagacaaact	aaaaaagaaa	acagagaata	gaagtaggga	agctcatggc	tttcgtcact	660
tc						662

(2) INFORMATION FOR SEQ ID NO:1278

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...690
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1278

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ggccggtcct gtctgttggg cgatggccgg cataccgcac aggatgagga tgccaatgat      60
aatagcgatt tgttcatacg ttggtcgggt atcgaatcaa tgagtgagat gaggacaaaa      120
gagccaatgg gcgaatatgc cggcgacagt ccgccgatcg catgtgctcc gatcgctgt      180
gtgatgaggg ggccgtcttg agactgtcga gcatggccgt gtgcgtactg aggaagccgc      240
tccagacata cccatggcgg tgaaaacggc tactgcattg ccgtccagga tacctgcgcc      300
gagaagttgg gtaccagtcc gagggctgca ccgactgctc cgacgcggtg atcggaagg      360
cgatgagggc ggaatcgggt aagccgaaga gcagcggaag aggaagtcca ccttgtcggc      420
aaggccgggc agcaggccga cccttcgtat gccttgccgg cgaagggtgc gtcgggtccg      480
gcaggtccgt ggtgagcatc ataacygccg tactgatgat gagtacgccg gggatgatgc      540
gataccgagg tctacaccgc tcttgccgcc gtccagtacg gcattgagat acgcaggaaa      600
aggttctcct tatgctcttt cgtttctcg tgctgcactc ctccacattg accggactgt      660
ccatttcgcg atagcggcgg agcgtgtccg

```

(2) INFORMATION FOR SEQ ID NO:1279

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 525 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc feature
(B) LOCATION 1...525
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1279

```

cggattttcc ggaattgctg tcagaagtcg agacgatagt ctactccgga ctcgaaatcaa      60
tatcgactac ttcataacag aggtcatgga cgaggatctt tggaagatat attcgagtat      120
ttcaaagaat ccacgacaga ctctttgagg aggctatgca agaactcggg aaggactatt      180
cggaggaaga gattcgttgg tacggatcaa gttcttatcc gaaatggcaa actaatgcat      240
cagttatgat gctataatac ggtacgaaag atgaaaaaga atggaatgcg catcgcataa      300
tcatgttgtc gttgctctac tgggcactcc cctcaatggg acaaagaacc gtggatcgac      360
gaagtcgtat ggatggtggg gagacgaacc gatctgcgct cagacataga ggctaccaa      420
acgttttttg ctacgttcgg gcgcctctt gagggaatgc agactgctat attcctgagc      480
agattgccgt caaaagcttt ttctcaatca agccaagatg gacag

```

(2) INFORMATION FOR SEQ ID NO:1280

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 375 base pairs
(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...375
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1280

catgaaacgc	tctctaaaaag	gagaaataag	cgtgggcgaa	gggtacgaaa	caacaaatgc	60
cgatgctgat	ctttttcagt	cggacagtcg	gggcaaaggc	aaaggagAAC	ggaaagcaag	120
atgatcaaat	tcatgagtat	cgccagcgca	gtagtggcaa	ctgctactat	ctctccaatg	180
gcaatcaggc	actgctatcg	atgcaggcat	tccattaaga	agcatttcca	aagccctcaa	240
agatctcagc	tccccatcga	aggtaatgtc	gtaggtgtat	tggtcacaca	tgacatgccg	300
accacattcg	aactatcggc	tgcttgggag	aaaaattcca	cctcccgtat	ttgctacgga	360
aagagtacat	aacgg					375

(2) INFORMATION FOR SEQ ID NO:1281

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 510 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
(ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...510
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1281

atgccattcg	ggcgatgtaa	tatgggagaa	ctggctctttg	ccacagaggc	ttgcgcaagg	60
caatggaact	acgtcccagag	tttgagaccc	gttattattg	actgaagcat	tgcttcgacg	120
ccatctcacg	gaagaagcgt	tggctcaatg	aatttactcc	ttgaggaagt	tccgatgcat	180
acagcaaccc	tgctcaccgt	gctaagttga	ggttagaaca	aaatgatccg	tcccagagcac	240
ttgagactgt	ggtagccggt	tcgaatctac	atccgaattg	gaggaacaag	ctctttcctc	300
tattacggag	cctccgccat	gaaggacatg	aaaaacctca	agaatgccct	ttgcctgctc	360
aaacaggcca	tcgaaaaaaa	atgatgcctt	catccggcca	gactccttcg	agcgcgcata	420
ctcattgact	tggagcgcta	taagaagcca	cccaggattt	ggattgggtg	gcagcattcc	480
gatccggaag	ggaacagggtg	cctatgctcc				510

(2) INFORMATION FOR SEQ ID NO:1282

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 988 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...988
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1282

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gaaaactatc ccgaggacaa gaccggaaga gaatggcagc cgtgaaacat ccggaagat      60
gagtctgccg gcgtacatac gattactttc gctcgcgact gtacatagag aaggaggatt      120
tcatggagga tgctcccaag taatatcccg aatgacgccc gggcaggaag tacgcttgaa      180
gagttcttac atagtcgttg tacgggatgc aaaaaggacg aggacggaaa cgtcgtggaa      240
gtatagccga atacgatccg ctgacgctgt ccggtatgcc tgagagcaac cgcaagtaaa      300
gggtaccatc cattgggtat cggcacagca cagtctgccg gcaaggtagc actgtacgat      360
cgtctcttca ctgacgaaaa cccgtcggac ataaagacaa gacactggcc gagatgctga      420
acccggattc tctcaagggt caaaaaactg ccgagtagag cctttcctcg cggatgccgc      480
tccgggatcg acttccagtt ccagcgcata gggtacttca cggtaggacc ggatagtcgc      540
cgggggcatt ggttttcaac cgcacggttt cgtgaaaga ttcttggcga aagcccaaaa      600
gaacgcataa aggacattat ttatctcact cgcaccttgg gatttattca gtggtgcctc      660
gcgcacctga actattggac tatcattttt tgatggccat cgagagttcg tttattccgt      720
tcccgtcaga gattatgtgc ccccgggtgc atggatggct gccacggggc aaaatggact      780
gaacttttcc tegtattcct gttcgcaccc atcgggtgcc gaataggagc tgcgtaaact      840
atatactgtc tctattgtct ggtcgcacct tegtctacgc gttgccaaac gtaagctcgg      900
gcatttgtgt ctgatcaacg aagaagaaag tcgatatgca gagcgatatt tcgacaagaa      960
cggagctgtc tccacactgg aggacgtt

```

(2) INFORMATION FOR SEQ ID NO:1283

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1103 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...1103
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1283

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cggccaaggt tttggaagaa gaacgaatca cccctaccct acaatcgatc gagatacgg      60
catacgcatc cgcaattcca agttgcccgga tccggccaaa taggcaatgc gggcagcttc      120
ttcgtaaatc cggtaggtatc cgccgagaat tcaataccct gcaaaccgaa tatccctcca      180
taccaagcta tctcaccggg atggcagcgt gaaagtcccg gccggatggc tgatcgagca      240
atgcgataca aagggcatcg ctccgggtgca gtagggtgtct atgagcatca ggcttgggtct      300
tggtgaacta tggcggagct acgggcactc aggtgggagc tttgcagaag agatcatagg      360
caatgtccga cagaaattcg gaatcactct cctccggagg tcaaatacat ttataatat      420
caagtagcaa gcctttttgcc ccattgcgttg catattatta ggctcaggca ccagcaccgg      480
cgtcccccga tcggctgtca ttgtagggtg tgtcgtagcg aagacaggca tgacaagcga      540
cccgtacttc tcttcttata atcacgggatg caggggaaacg aatcctcacg actgcagccc      600

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ggacttttcgc	caacaagctc	tgtttgccgg	catcgatcgc	tcgatgccgt	tttgctgact	660
cacgaacatt	ttgaccacgt	cggtggctcg	acgatctgcg	caccatctgt	tggcatcgcg	720
aacttgctgt	ctatgcgaac	agaatgtatt	ggactccata	cgcgacaggc	tgcactatgt	780
attcgcaaaa	atccttatcc	gggcactcct	ctactgaaac	tatgcgaagt	aaacccgata	840
tgccgtttca	agtggcagac	ctgacggtag	agcctcttcg	aaaatgcatg	gcaggttgcc	900
gatactcgga	tataaaatag	gagagatggc	ttccttaccg	atatgaagga	tatagcagca	960
gaagaaatcg	agtgcctgaa	agctgtcgac	ttctttttat	caacgggctt	cgctaccgga	1020
agggaacatc	ttcgaccagc	accatagagc	aggctattga	cacaatagga	caaatcggaa	1080
tccggaaagg	tgtcctgata	acc				1103

(2) INFORMATION FOR SEQ ID NO:1284

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 555 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...555
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1284

ccggccttga	tcgtcgaaac	catgcgtcat	ctcgtgtccg	atcactacgc	gataccgcca	60
taattgacag	catcgtctgc	atccatgttg	aagaaagggg	ttggaggatg	gctgcaggaa	120
aacaaatttc	gtttgtggtc	ggattgtgta	ggcattgaca	tcctgaggat	tcatacagcca	180
acgctcgcca	tctacatctt	gccgaggcca	gccatattgt	cgatcatgcat	ccatttgctg	240
gcgcgttgat	atcggcataa	tagctgtctc	ccttgatttc	catcttgga	t'agttttcca	300
cttgtcgcca	taacccgatc	ttgatgatga	aggaattgag	ttttcctgag	gtttcatctt	360
cgtgggagtc	gccatcccat	gtaagcatgt	tgtacgctct	ccgagggccg	tttgcagggt	420
cttgacgagt	ttgagcatgc	gtcttttgct	tcgggtgggg	aaagtattgc	tttacataaa	480
cttcgcccag	gcttcgcccc	gaaagctgct	taccatacct	acggaacggt	tccagcgaga	540
tgctttcggt	ggttc					555

(2) INFORMATION FOR SEQ ID NO:1285

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 529 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...529
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1285

cgagcctctg	cctgcctcta	ttctggcttt	gcccgcacaa	cgcggcgtga	agacaaagta	60
attaccttcc	tgggacgaat	cacgatgcag	aaaggcccga	atacttcgtc	gaagcagcgg	120
ccaaagtact	cgaacgcaca	tccgacgacg	cttcgtaatg	gccggaaacg	gcgacatgat	180
ggacgccatg	atcaggtggc	tgcccgcacac	aagatagccg	accgcttcca	cttcacagga	240
tttataaagg	cgaacaggtg	tacgaggtat	ttaaggcaag	cgatgtctat	gtgagccatc	300
cgtatccgag	ccattcggca	tctctccact	cgaagccatg	caagcggagt	cccctccatt	360
atttccaaac	agagcggatg	tgccgagatt	ctgattacgc	catcaaagtg	gactattggg	420
acatcgatgc	catggcagac	gcatgcatgc	gcttatagct	tatccggaac	tgcatacttt	480
cttgcgggac	agggtctccg	agaggtgaac	aacatcaagt	gggagactg		529

(2) INFORMATION FOR SEQ ID NO:1286

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 608 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1286

tctanaggat	ccccgggatc	attccgcgaag	gggatgggca	aacactatcc	tgagtgtctca	60
gaccaatgga	aagtactatc	agcagtatag	tgtcacatta	tggtatccatg	gtttgggggc	120
aagcggcccg	gatatgttca	gcttcaggca	ttctattcca	agactacggc	gattgactcc	180
aagttctaca	atagcatgcc	ggcaactact	ataatgccta	ctataatagc	tactacaaca	240
actatatagt	tattacaacg	gtatgtcgaa	ctataccggc	gacctctata	ctcagccagc	300
gatccccgat	cgttcgcttc	agatgttagg	tacttcgata	ggtagcgtaa	agcgtttgac	360
ttggccggac	aattggttcc	agatttatac	tttctgaact	acacctacta	tagactgcga	420
aattggagct	acaatacctt	caaaatttcc	atcatggctc	gctaatagatc	tcaacttgga	480
gcctgcgtct	tctcgtactt	ccatcgataa	tcctatttat	accagagccg	gatcggatta	540
tggttttctg	gtgctgctac	tcttccttat	tctttgtggg	acaatcatac	tatgccagcc	600
agaacttc						608

(2) INFORMATION FOR SEQ ID NO:1287

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 620 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...620

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1287

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ctccttccag tcttgatctt tgatgaaacc cagacgctca agctgtttgg gtaataagcg      60
tagttataaa tggtagccat cgtacccagc tggtcgaacc ttcgataagc atcccttcgt      120
ggtccatatac ggtgaaaccc attggccttg cagcatatcc atccccttgg agcgtgccca      180
ttcggatacg gcatggaag ggcatctacg acttcattgt cgttgatgaa atcgacgaac      240
ccgaacgagc gttgttctga ttccaagttt cattggcacg gtgattgac atacggcgat      300
gcgtcccacg atccgccctt cacgataagc caagaaatag atgcttcgca gaactcaaaa      360
gccggattgc ggtctttgtc caaggtcac attcatcatc gatcagcccc ggcacatggg      420
agggattatt tctatagaga ttatattgaa ctgaacgaat ttcttcagct cggctttgtc      480
caatacttct ttattttctac agccataaaa ctcgtattta gtttacctaa gtagtcaaag      540
ttacaccgga ttttggacct ttcacgcaca aatataactg aaatagttat cattttattgg      600
ataaaatctg catctactgg

```

(2) INFORMATION FOR SEQ ID NO:1288

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 558 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...558

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1288

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ggttcaaaact ggccaatatg tacgtacagg cgggagagat agacaaggca tatacatata      60
caaccgtatg gaggcacaaa atgctgtcaa tgcagcagtg cctccaacta tgctgagatt      120
cgggcacgct tctacctgat gaccggtaga ccaacaaggc tctgaacgaa cttcgccgctc      180
tatgcaatcg attcccgaag tgaatgagtt taggctgaag tatgccggca ctctgctcga      240
cagtggaagt acgacgaagc ctacgagcaa ctgcaactga tagctcggac ggatcgacaa      300
gtggccttga tcattttgct atggccagct attacttggg aacaacgaaa aagaagctgc      360
catcaacgaa atgatcaaag tagcccgtg acaggggatg tggcaccgg agcagaaact      420
accgatcat cctgcgcttt acgggtaccg acacagacga agagggatgc accgaaaaaa      480
ggagtataat tctgcttga aaagatactt gccagccatc cacttgaggt gggatgcacc      540
cttttctatg ccgagctc

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(2) INFORMATION FOR SEQ ID NO:1289

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 401 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...401

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1289

cccagcatga	agaccataat	cttggccatg	ctggcgcgta	tcgatcgcag	agcatatcgc	60
ctgccgagac	gaggttggtc	aggctcagga	tacggaagtc	ctcagcagtc	gaaggatgcg	120
gaagaccatc	agcacctgtg	ctccgcttag	acaagggcta	tataggaggg	aagtatggag	180
atgaggtcta	tgatgcgtaa	aaggaaagga	tgtaccgcca	cggtttatga	aggcagtaga	240
tccgcggatg	tattcgatgg	tgaatacaat	ggtgataacc	cactcgcacc	aatgaaaaaa	300
ttccctcgtg	ctatgggaca	ggccttacg	tactttctgc	tgaacgacaa	tgacgctcaa	360
gaaaggatga	ggcatagcag	gagaatttcg	aaaagcgttc	c		401

(2) INFORMATION FOR SEQ ID NO:1290

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 789 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...789

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1290

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cagatcatct	tcctgattcc	ctgtttgctg	attatccccg	attcatgggg	ttggacggcg	120
tgtggtggag	tctgccgatc	agcgatcggc	ctcggctcgtt	ttgtcttttg	tgctaattac	180
catacagatg	aagcattcaa	tcaatcgaaa	aaaactactt	tcgcggagta	attgccttac	240
aaaacgaatc	cttttcatga	ctcagataat	cttaccggaa	cgatgaaagt	attttcgaag	300
cctttctcct	acaatatctc	ctgaccctct	acatcgcata	ccgggaggac	aggccctacc	360
gcaaaaagagc	ctttggcgca	aaggttttca	cctctgatgg	gtgtagtatt	caccctgtat	420
ctaatagggt	ttgccggcaa	cgggttttgc	ccgatgccgt	gatgagctgc	attatgtctg	480
tcacaggctt	tggtttgtca	tgtccattta	tgccatgttt	gccatggtga	tcgtagagat	540
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ctcgcacccg	attggggctg	ttcgtttctca	taggttttcc	tcggccttac	tcgtgataca	660
tggactgaat	atcgtgcgct	atcccgtgta	aagcatatgg	acattcgtct	ggacagacct	720
gccatagatg	gaaggagtcc	atgaaagtag	ccctgctcac	ggatattcat	attagcgaaa	780
cggtagcgc						789

(2) INFORMATION FOR SEQ ID NO:1291

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8947 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...8947

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1291

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aggatccccg ggcacaatca ttaaaagaat cctgcacaaa cgacttgccg aaacaaatcg      60
ctcatgcagg atgcaacttt ttcctatcga cctctctcta gggaacgac actttggctg      120
tgctgtcacc ggctcgtaca acgtataacc ggatgcaact gcaatgtcat gatctgcaag      180
cacgpcagca ttgtaatccg atgtccttgc atatcgtaca cctgaacaga tgtgcccgcg      240
ggagccccgc aatgaatatc cgaccggcag tagcccaaat acggatctca tgggaatggg      300
agcggccaga gaggttatta ccggtttgtt gtctttgagg tacgccaacc gttgtttgcg      360
tcgtttgcct gaagccaggg agcaggtttt tgtctgcatt gagcttgcca gccatatcgg      420
cagtcttcat tgccgcttcc gcataacctgc gatggcaggt atttcgacgc ccgtttccta      480
tgccgaccat cccgggtttt gttcgttgtt gtagaagcaa ccgtcgtatt tgcagttcag      540
gattctatcg ccgtcatacc gacaaaagca ccgggatttt ttctccctt actttggctg      600
acacgtagca gtgcttgcca atgaagtgtg ctgatactga ccgacaaacc ctccgagaac      660
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gtagactcgg ttccgggaag aaagcaaaat ttatgccgac aaatccaccg atcaacccaa      780
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ggtttga						8947

(2) INFORMATION FOR SEQ ID NO:1292

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1145 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1145

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1292

taggtctgac	cccagaagaa	aatagatatg	gggcatgccc	gcgccttgcc	agtatccccg	60
atccccagca	tcagcttgcc	ctctatgccg	agatcatcgg	cagggactga	gtgtacgtgc	120
cgtcgaaagt	ctggcgggcg	actaccggaa	gaagggtgcc	attcgcccg	caagcagaag	180
aaaaccaagc	agtcgcccg	gaagaatacc	gcctgctcac	ggggcagttg	tcccgattct	240
tccggcgaaa	gtcaagctcg	actgcgacgc	caagggcaaa	ggcaagctga	ccatcccttc	300
gcacgcgaa	aagagctgga	gcgaatcatg	gccctgctcg	agctatccgc	taatcctcac	360
accgtagccg	tcatgtccgg	aagtcggttg	agattgtcgt	tttgttcttc	tgcctttgtc	420
tttctcaggc	agcggcacag	acgtcgtccc	cgacagtatc	gggcggccgg	cggcgagtgc	480
ggccgattcg	cggccacgaa	gctccccgat	acgtcccag	tgcagacgct	ttccccgcgg	540
cctctacagc	atcctcccga	gacctccgga	cagccaaggc	gtggaaacca	atcccccccg	600
tgcactcctc	tactcggccc	tcttgccggg	gtcgggtaga	tctacaatcg	caagtactgg	660
aagctgcgga	tcgatgggg	cgcattaccg	gatgcactta	tgccatcctg	tggaacaaca	720
agacgtacac	cgagttcgca	aagcctatgc	cgacttcatg	ggcggcgatc	cgtcgaaaac	780
ggccggcaca	acttccctcc	ctacggagcc	gacctgcgg	attatgtcaa	taggagcagc	840
tcaaagctcg	tctcaagcgc	ggcacggagt	actaccgtcg	cacagggtat	tgagtatcat	900
cattaccctc	ggtgtctact	tcttgacgat	gtggatgcct	atgtggatgc	cgaattgttc	960
gatttcaaca	tctctcccga	ctctcttttc	atttcagtc	gatgggtggc	acagacgata	1020
agtcgggctt	ttcgttatg	gagttagctg	cggtttcaat	ttttgacctc	tccttatgtc	1080
cggatgaaat	actgtctcct	ccctgccttc	attgcctttc	tggccttctg	ccgggtccgat	1140
cgtcc						1145

(2) INFORMATION FOR SEQ ID NO:1293

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 605 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...605

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1293

```

ccccgcactc ttgagcaggt catagtcgat cgtcgctatc aaagacatac cgtaggagta      60
gctttgagat tcttcttctc tttataaatg tagttgcgtt gaagagagtc tcaatgatgg      120
ctgctcgcgt agacggccgg ccgatgcatt ttctttgagg gcatcgcgga gctcttcgtc      180
cttgaccgac ttgccgccgt ctccatggca cgcaggagtg tagcttcggt atagaatttg      240
ggcgggtgtg cgttttctcc tgcacctcgg ggggtgtgtac tccactttcg ccctggagaa      300
tattggcagt tttttctcct cgtccttggt ctctccatca tcgccgttgg cggatcggtg      360
aaagacaagt gccgccagcc cgggcttcca agatctgttt ccccggtggg ttttgaactc      420
taccttagct gcttgctcca gccgtgggtc ggctgaatat gcagtcggga tagaaaacgg      480
ctataaatcg cgggccacca gatcgaatac cacgtcgctc atcctccgac ataccatgga      540
tggtgaccg gtgggaatga tgcattgttg tcaagtgate ttgctatttc gaataacctc      605
gcttt

```

(2) INFORMATION FOR SEQ ID NO:1294

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 564 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...564

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1294

```

ggattggagc gtttcctcgc agagagccgg tgccatctgg cagtcagccg catagcccct      60
tcccgggaaga aaggaggaaa ctgatgccgg gtgaaaagct ttccccatta tgcagacgct      120
cgaccggatc agggcttacg atttcaggga caacgacgag tgctggtcga atacatcgtc      180
ttcgatggtc tgaacgcgat atgcgccatg ccgacgaact ggccgctatc ctccgcggga      240
tcccgcgagg atcaatctga tccgcttcca caaaatccct gccgtatcgc tccgtcttcg      300
gataccgctc gcatggaggc tttccgcaaa cgtatggaat cgctggcttt acctgtacca      360
tccgtgcatc gcgaggggaa gatatatctg cgcattgcggc atgctctcta cgagcaaagc      420

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ggagtcttcc	gaagagaaaa	gtcgttaagg	cggaaaaacg	actcttttgc	gacaactatt	480
attactacct	tggacttgta	ttcggaaaaga	gaaaaacaaa	aggcgaaaca	gcaaaatgaa	540
cgcaataccc	gtttattatt	cgtt				564

(2) INFORMATION FOR SEQ ID NO:1295

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3379 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3379

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1295

caataagatg	accggactcg	aatgtcgcag	ccaacaaaga	gctgaaaatc	tccactgcaa	60
caacaatcag	ctgacgcgcc	tcaatctctc	ggccaataca	agctgacgac	tctaagcttc	120
ttcaacaacg	agctgacaaa	tatcgattct	cggacaacac	ggctttggag	tggcttttct	180
gcaacggcaa	taagctacga	agttagatgt	atctgccaac	gccaatctga	tagcactgca	240
atgcacaaca	accagctgac	tgctctggat	ctgtcaaaaa	cgccgaaact	gacacgttga	300
attgctactc	caaccggatc	aaagataccg	ccatgcgtgc	attatcgaaa	gcctgcctac	360
gatcactgaa	ggagaaggca	ggttcgttcc	ttcaacgacg	atgaaggagg	agaagaggag	420
aacgtgtgta	caaccgaaca	ctggaaatgg	ccaaggccaa	gaattggaag	gtacttacct	480
cgtggggaga	cctttccccc	gaataacggc	tttgatttcc	atcgaagggtg	agagcgaatt	540
tccgtatatg	ctcaagatgg	catcctctac	ctctccggta	tggagcaggc	ttgcccgttc	600
aggtatatac	cgtgggagga	agcatgatgt	actcatcgtc	gcttccggat	cagccatgga	660
aatacagctc	cggagagggtg	cagccttgta	gtacgtatcg	gcagccatgc	gatcaaaacc	720
gcgatgccgt	aaacgatttt	acccaacgat	caagggctgt	gccaatggat	gatattccga	780
gaggacagcc	ctttcttttt	caccatgaac	ccgtgacaat	gtgcttaggc	cgagaagaga	840
gagattcggg	aagcaatccg	cccaatagtg	aacgaaggac	agcatcgagg	gaaggacaag	900
cgatgcaccg	gcattcccaca	aatcggcatc	ggcaagcaac	ctgtattcac	tgcaatggta	960
aagataccgg	catcgacagc	gcacgaactc	ccagcggagc	attctctacc	acaaaagcct	1020
cgggaaggcg	atccccacgc	actccaatgc	cttgagataa	ggctccggat	gaggttttca	1080
cgggtgtacat	cggcacctgt	caccatgttt	gcaggactga	aattgtccca	taacttcttt	1140
gcaaacgctg	caatatatca	gtctgggacg	aacctgcacc	agcatgatac	gcaagccccg	1200
gtcacaaaacg	tccgacacca	gagccgagca	tcgtcgatca	cgtttccgga	attgtacaaa	1260
gcgaagagtt	ggctttgcgc	ccgtacatat	cggtattttc	tttttctgtc	ggcagtcgtc	1320
cgttccccgt	tccaacagga	tcttgatggg	atcgctatcc	ttctgtcctt	ccagcgatag	1380
aaatccagcg	gtccgcagc	gataccgcat	tctccggcag	ctccacccaa	ctccgtgcat	1440
gtgccggcat	ggaatcgaac	agcaactccg	catatcgaaa	aagcacgaac	ggagaggggc	1500
atgccgggat	gccttctctt	gcggaaagcc	tgtaatgcct	ccgttatgtt	attgtagtcc	1560
atcgactctt	tttctccatt	agcttatgac	actccagtct	tctccttggg	ggaaaagttg	1620
ttcagacgaa	gagccagcat	ttgattgtcg	ggatggcgaa	gttcgggtcg	cgctccagta	1680
gttgctccgc	tatacttcgg	gaaagagcta	tcagcccgtg	tctcgtgcgg	gattggctat	1740
ccgaaggctg	atctgacgac	cgcttggcgc	gtaccctcca	agtcgcgaa	accacgaagg	1800
cgcataatctt	ccttgctatt	tccaatccat	cgttcgtctc	caccatcacc	tgaatacgcc	1860
gagcgaatcc	tctctgtttt	tcttctccgt	gatcaggatg	caatagcttt	gtctcctccg	1920
cggcctacac	gtcctctaag	ctgggtgtag	tgcgacagcg	gaaacgatcg	gcatttctca	1980
ctaccatcac	cgtagcattg	gggacattcc	tccgacttcg	ataaccgtcg	tagccaacaa	2040
gatacgggag	cgaccgctac	gaagtccgcc	atacgtgcct	ccttttctct	ggctttctac	2100
ttgccgtcac	catcgtcacg	ccctcatcgg	ggaaaatgga	agagaacagc	tcgaagcatc	2160
ttcaagattc	ttcagatcgg	tctgtctccg	ccccctcgatc	atcgggtacac	cacatacacc	2220
tgcgggcctg	cggcaagctg	agatcgacgg	aaacaaagac	cggagccata	tcgttgctga	2280
agtgggtggag	ggctctgtatg	ggctacggcc	gggaggaatc	tcgtcaatga	tggaaaatctc	2340
cagatcgccg	taaacgtcat	ggccaatgta	cgagggtatgg	ggtggcactc	ataatcagaa	2400

ttggggcaga	gtgtcnaggt	tcttttccca	caggcgggct	cgctgctgta	gccgaatcgg	2460
tgctgctcgt	ctatgactgc	cattcccaaa	cgacgaaagc	cactccctgt	tccaataggg	2520
catgctgccc	gacgacgatg	gagagcgacc	atcggccaga	cgcggaagca	agcgttcccc	2580
ctgacgtgcg	gtacagctcc	gatgagcaaa	ccgacttcta	tgccaagcgg	tcgcaacagc	2640
tcggacgggt	atgatgatgc	tgtctggcga	gaatttcggt	cggagccatc	aggcagcctg	2700
acagccattg	tccagagcca	acagcatgga	cagcaaggct	accaagtttt	accgctaccc	2760
acatcgccct	gcaccagtcg	gttcatttga	tgtcgctgag	ggtatcctgc	cggatctccc	2820
gtatcacccct	tttctgcgca	ccgtcagttc	gaaaggcaga	tgttccttgt	agaatgtatt	2880
gaataaggct	ccacttgagc	aaaaacaatt	ccctgaaaac	gcgctttacg	ctccagcttg	2940
tgccgatcag	atgcagctgc	acatagaaca	gctctccgaa	cttgagtctg	tacgggcagc	3000
ttccagctgt	gccacccccc	gagggaaatg	aatctgtcga	tggcctcctg	ataggagacg	3060
aacccataag	acgaaaggat	gtaaggcgca	gtgtctccgt	cagtgtggct	gatacctgat	3120
tgaggagtac	gtacagagtt	gctggagctg	tttgctgccc	agccccatac	tcttcatgcg	3180
ctctgggtgt	gataaatcgg	agtcagtcgg	ccggctacct	gctctgcctt	ctccccgcat	3240
ctatttccgg	atgtgctatg	ttatagccgg	aagcgaagaa	aacggcttgc	cgaaaacgat	3300
atatcgccgt	ccttccctgca	gtttgtcgcg	tagtacttga	tacccttgaa	ccaaaccagc	3360
tctatgcttc	ccgtaccgt					3379

(2) INFORMATION FOR SEQ ID NO:1296

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 403 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...403

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1296

tatttttttg	ggcgatatta	tcctgaaaga	ctttaatgag	atagacaaaa	cctcgtatcg	60
gccaaagcct	tatacagcaa	tctgaaagac	tttcgggaat	ggagaacgat	ttctcatttt	120
tgagcgaaag	acaggtagca	gccattccag	tttttgggaa	tcctttttctc	cagcaagcgg	180
ccaaatggag	aatggagtca	gcagagtttt	ctggatttct	ggaagctatt	gtccccgctt	240
tacatcggtt	caaccaacgt	cttgacagacc	aaggcaacgg	ataccatggg	atgaccttcg	300
ccatacagtt	gatcgccctc	ggcaaagaga	aacatcggtg	cgaagctgct	ctcatctgca	360
gacagagggg	ggaatgcaca	tcctgataaa	tagtctttgg	cgg		403

(2) INFORMATION FOR SEQ ID NO:1297

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 526 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...526

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1297

```

ccacatcagt tcgataaacc cgtacatgtc tgtacccgcg tgctatccgc tatectcggg      60
gacgcgacgc tgcgtgatca tctcaagcgt gtcggctgtg cccacaagggt gtcggggttg      120
gaaaagtcga tcatataaga tcgttygtgg caaaagcata gtccttcttc tcatcgtaat      180
aaccatactc cccataagag aagaacggtt caccgtatcg gtgaggatca tattgccgaa      240
ggcttgccaa aaccgggtacg acggtcgtaa aagatcgagt ccccgctcaa ttgctggccc      300
cgttggagga ataaacgatg gagcgatcca gcaaaatgcc tactcgggtg tcgaatcgta      360
cactctcgcg gtagaaacga tattagccgg agccgatctc atctccgtag gccccaatat      420
gtgactgatc ttggggtatc ttattataat gaaagttctt tcccggtgtc atggtatagt      480
cccttatttt ccaaatggga catttattct tcggaaagaa tggcat                          526

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(2) INFORMATION FOR SEQ ID NO:1298

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3642 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...3642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1298

```

acctgcteta taatacggcc tatttcctgt ggggagataa gcgatggagc cctcctccga      60
agtaaagagt gccgatcgta tcggtgactt cgggcacgaga atactcatct cggcgatcag      120
tgcctgtata tactccgaac gaagcgcttg ttctgtctgcg aatagaagtc gcaatacagag      180
cagcgcggtg cacagaagga atatgaatgt atagtcccg cacttgatct ccatgcttga      240
gggaggggata cggggccggc cacattcatt ttgttgatgg cttggagacg tactctatcc      300
cgcggtggctc cactgtttag ctctttgggc agcaggtagg agtgtcttcg atgcggtcag      360
ccaccagcct gtccctgcac cgcccgaggc tgcgaatctt ctgaggaaga ggcggtagta      420
tactacagct gtttctccgg cgctttgtcc caactcacag cgattttgcc atctgtccgg      480
cgtgtcagcc aggaatttct gcttttatgg gagcggcaaa acccttgcca tgtatggggg      540
gggtaccacg tcttcggcaa atcgttccgc aatgatctgc ggtatgcctt gctttcgtgg      600
cgcaactgat cttctcggaa gaggcagacg ccggcgatcc tatgtgacgg gcgagtcga      660
tttgctctcc gatgacttga gccggcactg actgttgtct acgaccgat aggtgggtaa      720
tccggggata atcggaggtc gggtagctgc gctttccaat cttcaaggaa aggataaaat      780
aggtgtcacg gtagtagagc atcggtaacca gaaagtccac acttccttct tgtcccagac      840
aacgggatcc tgggtgaccc ctctgtaggc tgtccagtca cccacgttt gccggcgagc      900
tttctcagac ggccgatggg agctacgctt actgtaccca cggagtcttt tccgtagcgg      960
ctcgggtgaac gtccgccatg ggtcggacag gtttcgcgcg cgccatgctg ccggatccat      1020
attgcctcct actgtttata ggtggcagca tcatcgaaga ttttggtttt ttccggatgc      1080
gcatgtagtc gaggtgaatg ccacgcagcg ggtattttct tacgatccac gaacagggga      1140
tgcaagtagt gctcttgctt cgggtacgcc cggattaggt accatagatt attgtgcggt      1200
acacaccatt cgggatgacg gctttgaccg attcgccttt cagcgaacgt atgtgtttat      1260
ccggtcctaa ggggtgacaa tgagccacgc atggaaagtc agacctcgt tgtggcactc      1320
tttagggcaa actccagcgg gtcgtagtcc ggcttgcttg tcccggtgaa taggtcgatt      1380
ggggttctat ctccagagggg taaatgacat ctccgcgatg agcacctgaa agaataacgt      1440
gttgaatttc tcacgtttga gcctgtccag atacggcaga gttcttctct ctgttttcgc      1500
agtccttcgg ccgtaggagg gagcgtttgt gccagtcgag tccatatatg gtggtcagcc      1560
ataccccgac atttcctctc tcaccggact gacccacggt tcgatgacag gagctgcac      1620
accgtgtccg gaagaggctt cactgtgggg ggagacgggg cgacctttta gtgccacagc      1680

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cgccaaagag	gagagcggca	atactgacga	accacctgtg	agaccgctaa	tcttcatatt	1740
tgatgttatc	gatcaggcga	accttccgca	atataccgta	atacaaccta	cggcatggtc	1800
ggtgtcttgc	cagtgtcgat	cttttctaag	gaattcccgt	ctactatttc	gaagtactcc	1860
actgcagatg	aggcagggca	ttaaggcttt	ccgtcaccga	tcgcgtaaca	gttcgggtgt	1920
atgtgccgga	cggagtgtgc	ggctttgtcc	gaggatgcga	cgatggatgg	ggctatggca	1980
cgctcttcgg	tgccgaggcg	gacgttgccg	tactgagtgc	aagcccgtcc	tcttcacgga	2040
tgataggaca	ggccacgacg	taacgggtaa	gccaaagcag	ttcaccatgc	tgccgataac	2100
ggcgattgct	ggaaatcctt	ttctccgaaa	tatgccttgt	ccggctccac	catcataaga	2160
gtttgcttac	cacctgcgcc	acgccattga	agtgtccggg	gcatcttgc	cttccatcac	2220
ttccgccaca	ctgcccagat	cgaatacgcg	agtgcgggtt	cgggatatac	ctcttctacg	2280
gagggcatga	atacggcatg	acagcggctt	ccgccaaagac	tgctgcatcg	gottccgggtg	2340
tgccggggata	acttccagat	cgcgtttgtc	gttgaattgt	gtaggattga	caaatacgtc	2400
tccacgcaaa	tgctgcattc	ggctacggca	cgggtggatca	gactgatgtg	cctcgggtgca	2460
aagctcccat	cgtggggacg	aggccgatgg	ttttcccttg	gcacgagcat	gtgccacaaa	2520
gttcttgagt	gaagcgacgg	tggtgaattt	tccataacgg	cattatttgt	tcttctgtta	2580
tgactttggg	gataaatcct	cggggataat	tttttgcaaa	ggaacagatt	atttgcggat	2640
tgccgggtga	tagagagact	tttagtggtg	ctttagcctt	ggcttatcgt	tatgcctcaa	2700
aaatcaattc	gatgaaaaaa	gtattatctc	tcttaatggg	attggtgcta	tcatgtttta	2760
ctgccatgat	gcccagtcgc	aaataagtat	tcggcttttg	agttcaacgc	caacttcaat	2820
cattcgccgg	ccggcaccgg	tgccgcagtg	atctgctcgg	tacggatctg	aatctgcgga	2880
tgcaactgca	tatgccgaac	tacccgatgc	cttggatttc	tatgtcggca	tccagcggag	2940
gagagctttt	ggcagaatgg	aaatggggcg	atcatctatg	tgaatcatcc	gatgggacaa	3000
aagagaaatt	gaacttcggc	actgctgaag	gcccgtttta	agcgatgcat	acagcaagtt	3060
gctgatttgc	ttcggcccg	catatacctg	tctataggca	agcgtttcgg	ttggaccaat	3120
gagctgatgt	tcctcttgc	cctatacctt	ggagtcggct	tccttatcat	tcgatcggat	3180
acaggcttcg	ggtagatcat	atgcgaggaa	agagcacaag	ccattcagat	acaaggcttt	3240
tcaccgcgta	tagggatcaa	tagctgtctc	tggtggaaaag	tcttgtcaga	gacgaatata	3300
tcttccgcat	cgggtctgaac	gttgggtatg	aaatatggat	cagctctacg	cataccgcca	3360
cttcaaagta	aatgaagaaa	acctctttcc	tcctctctcc	aaaggctgaa	gcacatcggc	3420
caacatcggc	gaactttgcc	ctcagttctg	actgagggtta	tctcaataaa	attcaggtag	3480
gataggtttc	gatagccttg	gtaagaacgt	cgggtgaagag	gagaaggaca	aaatattttac	3540
ggcttattgt	cgctttgggt	tgagccacaa	catggagaat	aagggaaacg	tcggggcatt	3600
atatcttcta	tgatacggga	ggtgataatt	catcggcagt	tc		3642

(2) INFORMATION FOR SEQ ID NO:1299

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3150 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3150

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1299

cgaagaggaa	aaatcgactg	tcagcttcgt	aagacatgac	tcaaagcatt	aggagatact	60
ccaaatcagc	ttcttcgtga	tagggagaga	gcgacaaagt	actgttccgg	tagcgaaggt	120
accaatcgat	cgatgcgcca	acggcgccaa	tgaatccccg	tgcgagtgc	aatgtcgaat	180
gcttcgtaca	gagcatgcct	atacgtgcag	gtgtcagccg	gtcatgcgtc	agcgagcata	240
gatagcctgc	tcgatcgggt	cagcagcacc	atacaccgga	agtcccggga	accgtgcac	300
tgctgcatac	actgtttcac	gcgtcccgcg	tgatacgaaa	gngngaagtt	ggcgaacgga	360
agccagcaaa	gcggtaaagc	caagcacatt	gacgtgccgg	ccataaaccg	ctccggcatc	420
tccaccccc	ctgtccagtc	accgaatgca	aaccattgcc	acctgtgggtc	agaggggtgaa	480
cgcttcgtgg	tcacggatat	agaatccgcc	cgtaccggaa	ggccccaaaa	gtcctttgta	540
ccggtaaaa	ccacataagc	caaccccaat	ttcatcagct	ttgagtcgga	agttccgaga	600

tactgcgtag	catcggccaa	gatagggatg	ccgcgctctg	tgtgagcaaa	cgggctatct	660
cctctatggg	ctggaccaga	ccattgcatt	gctctccaga	ttgaccacag	cgagagccgt	720
atctgtggga	atggcctgac	cagccggctg	gtatcgactc	gtccgtcagg	catcgaaggc	780
atgaggcaat	ctttagaccg	atggatatcag	ccagacattg	gagcggacgc	atccagcatt	840
gtgctccatc	ggactgacca	gcacgctaca	gcctgcctgc	aagagcctcg	aagaatggta	900
ttgatacctg	tagtggcatt	atccgcaaaa	cgatatgagc	cgactcggat	acaccgatca	960
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gcggctg	cgtaactccc	taccggcaca	tcgtagaaat	acgccaaagc	ctgacgcagg	1080
catcgggttt	aggataagag	gaggtggcgt	tatcgaaata	tgtattctcc	gcaatgcggc	1140
aactcatcaa	gagcaaatgg	gaggtattcc	tcgctaggga	gacattatac	tgccggttct	1200
gacaaatcgt	tcgaatccaa	acagcgtcaa	agataactac	at ttgctgat	gttctcgtac	1260
cactattcca	cagtacgccg	atttccctgca	tcgtgattac	ggctttatct	cccgatgcgg	1320
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tggcgcatag	gtaaaagcgg	caacatgacc	tctctaccca	gatcgatagt	caatggatcg	1560
tccgaaagag	cctccagtct	gcacgtggaa	tatcgttcca	cgactcatcg	gcaacgactg	1620
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gcacgtgctt	cgtggatcag	gcctcgccctt	cggcggtaca	ttgagcagga	gtactgaatt	2040
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ctcagcacat	ggtaaaacca	acccggacga	atagaaacgt	ccacttcgga	cggatacaaa	2160
agattctgcc	agcttctttt	agcacctctc	ggctgcccac	atccgagagt	tctcccta	2220
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ctccactcgg	tggttcgtcc	cagccacgct	cattgcctac	ccagcgcaca	tcgtctccca	2340
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ctccatagtg	agtgaagcgt	tcggtaaagct	gactgacaaa	aaccgattgt	aacggtgcga	2520
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tactcttcgc	acgctgcccg	acttctttca	ccacatcgcc	tttgccctct	cgccacggag	2640
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gccgtaagga	ttaccatgcg	aaagcccgtc	tcgtgcagta	ttcgacccat	tgccgagcat	2760
ccagctccac	cgggttgaag	agtgccggat	ctttttccca	tcaccccaact	cactgtcgggt	2820
aaaagtattg	atgccgaagt	gcgaaatgcc	gtcagctcca	tctgctgcca	agccagctgt	2880
tgtagggtag	gactaccttt	gccgccatct	ccaccttctg	ttccaaagtg	gcacgcggcag	2940
aaaaaccaca	gaccccggtg	agtagacttc	ttgcccctgc	ccagaaacac	agtaagcaaa	3000
aagacaaaaa	gcaggaggaa	acgatttgtt	atcagggttt	catttatcga	atgtttttga	3060
ttgcctaaaa	gggaagtgc	gtgtactaaa	aagtttgaca	ctcaaagagt	gtctgattcg	3120
tgattaaaaa	tacagttttc	ttctaaagtc				3150

(2) INFORMATION FOR SEQ ID NO:1300

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6442 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...6442

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1300

tgcgtggcgag	ccactcgtcc	tgtcacagat	ctgtccacct	tattggtaac	caatccttac	60
aagctactga	ctccatacgc	aatacctgct	ccagatatca	tccagacggg	cagggtcgta	120
ttgcggtgcc	tgatagcgat	gttctatggt	ctgtcctcca	tgatggtag	gggaggcttg	180
ccaaacatgt	cgtccacttc	atgtcgatag	gacactcgcc	attgtccttg	cggaagacga	240
agcgctatcg	tcagtgggtct	ctccgaccac	atacatggga	gcgcgttcgc	gttcgctatt	300
ttgcgtacat	attccaaatc	tttctcctgc	atcagcatcc	ccaacgttcc	tgactctcgt	360
tgccgattat	ctcttttgga	gagagggtag	ggctccgacg	ggaagccgat	ccatgtcgat	420
tcgtccgccc	gtcgcttcca	caattcggac	aggcagttga	gatgtcctcc	ggctccgtga	480
tcgtggatgg	gacgatcggg	ttattgtcat	tttccgctat	agctctgac	acattctgtc	540
acgctttctgc	atctcgggat	tagagcgctg	gatggcattc	agttctatct	gccggacaat	600
tgtcccgtat	tcacagagct	gacagctccg	ccacccaacc	tatgcggtaa	ttgtctccac	660
ccaggattac	tactttttct	cccggaaacg	ctctccttta	agagcgtccg	actgtttggc	720
atagccgaca	cctccgcaag	catgatgact	ttgtcatagc	catagcaggt	agtatcggga	780
gtttttggtg	ttcaaagggt	agaacygatc	ctgtaatgag	tggctggccg	aattattgcc	840
gaaatcgtcg	gcaccgttag	aggccttggg	caagatctga	cgggcgattg	atagagccaa	900
cggcgttcgg	atagttttct	ttcgaatggg	ctgttccatc	agtacgggcg	taagaagtca	960
tatagacagc	ggtacctgcc	acggaatgct	gctctttcca	ccggccattc	ggtcacgaat	1020
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tatgcggaca	caagcaaat	gggatgacag	cagaggtacg	tttgatcagg	ttgaagagag	1260
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aaaagggaga	ggctcttttc	agtgcctctc	cttcgggtttt	tcggagttgc	tttgataaaa	1980
taagcttacc	tggagcttta	caaataaatt	aggtcttttc	gcccaagtca	tccgtctggt	2040
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gcatagaatc	tcgcgaacaa	aattttcttat	tgcaagcctg	cagtagaaat	ctttatgcat	2760
aaaatcacca	ttgccgaact	gtgacaaaag	acttgccacg	gaagtttata	tattttctatt	2820
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ccccgaagcc	tttgccgtct	accaaagata	gtacggatgg	atcctcacga	tgcgtagct	3660
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gttcacatcg	gacaggattc	cacggcattg	gtcatcacag	acggatctta	cggcaggatt	3840
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tccctcctga	aagccgacga	ttcggaggac	gaggaacgcc	gtagacatta	cgtatataca	4680
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gaagcgcaga	atccccattt	ttggggagaa	ttaatgtgtt	ttgggctact	ttgttagtcg	4920
ggttagcaag	atttgtgtat	ttttgcgctc	cattagagtt	gtttgcctta	gacaatcaaa	4980
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taacaacaaa	gaccacatag	attattatgt	tgaggacttt	ccgaatcggt	ggtattcacc	6360
cccccgaaaa	aagttgtcgg	caggcaagcc	cgtagagggtg	ttgcctatcc	ctcacagggtg	6420
tcacccctct	tggtcagcac	at				6442

(2) INFORMATION FOR SEQ ID NO:1301

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 485 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...485

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1301

cggttgata	tgctccgaac	gtccgttgcc	tcgggagacg	gtactgacct	gcggttccaa	60
ttggagtatt	ggggcgatat	atatcggttg	atgaagcagt	ttccctcaa	gcctcggacg	120
aatggctgtt	cggttttacc	tcggatcatt	gctttggatg	aagcaaaaca	ggaaaatcct	180

attggacaat	gctcttaacg	cggcgagatg	gagtcttctc	agccgactgt	cacggatcgg	240
tacttaagga	gttgccctcc	gatacagctgt	tacctcccg	agctcctcgc	ctgacgggtca	300
ttggcttgga	accaacctgt	aagctcaggt	agtattaggg	caacgcatca	atatgatttg	360
tttagagcga	ggagcttcgt	tttcgctctc	tgctgaactc	ctaattggtg	tcctgggtgca	420
cattggtatt	tatggcacac	cgctatcttt	gcaaccgat	cttattcaat	cctgacctcc	480
aatat						485

(2) INFORMATION FOR SEQ ID NO:1302

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 523 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...523

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1302

ggagcctaaa	ccctcgcaga	gggagggagt	cgngatgtgt	agtttcccg	cttccgagta	60
caggttcagg	ctctgtattg	agcaggctct	catatcggag	gcctcgtgtc	aggatttgg	120
tgccgcgcgc	ttgcggagca	tcagggtctt	gctcggagca	atcggcagaa	cctgtcccg	180
ccgatcgaga	actacttccg	aagtactgct	tacagaaaat	gtaaagccc	aatgctgtcc	240
gatcttactt	tgtgggtaat	aattggatta	tatccggtcg	gaatttctgt	actttgatta	300
gaaataggca	tcccattttt	ctttcaaaaa	agaacacaaa	tacttgtatt	atgatgaagc	360
catctctttt	tttgacactt	gttgctgtgt	ttttatggtg	acaataaaa	gattagcaaa	420
accacaaata	gacaaagagg	tgatcccata	acgaagctga	ctttacgaaa	tcccagaat	480
ggaggcagcg	ggttttatgg	acaaatatcc	catgctctgc	tga		523

(2) INFORMATION FOR SEQ ID NO:1303

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 975 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...975

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1303

cggaatatca	gcgtattcgc	ttatctcacg	acactggatg	ggatgctcgt	taggcattta	60
ttgggacgat	ggttggtact	atgtctattg	tagtggcttc	tactcaatcg	ctttagagta	120
gaagagatgc	aggatcatat	ttaccgctca	cacgaatata	gtactgcacg	cagcacgagg	180

agggcaaggc	ctataagctc	tcatcaaggc	tctatctctt	gacgggtctag	atatgtcggc	240
ttatttcagt	ataaggacta	gcttcataaa	aacgattgca	cctaacagca	ttcttaagat	300
gctgttaggc	gacttcttat	tactgctgga	gttggtgagt	gaggcttctt	gctcttggga	360
gaggagttgt	tgctggagct	ggagttcggc	ttgcgttcga	tggctagttc	gtagtctctg	420
acacgagagc	ggagcttgcg	atggagtcgg	aggagtcttc	ggaggagaaa	aggctgtcaa	480
ggctggcgat	tttggctgtg	tatagccgag	ctccattcgt	agaatacgat	agcggagaga	540
tgactatcaa	gggcttgatt	gacgccatag	agatgtgtcg	cccaaccatg	acgcaggcaa	600
ggacagcgat	catcacaccc	catatgagcc	attctgccag	cgtttgacat	cgaaaaggta	660
gtatttgga	agctttat	cgggtgggtt	tgtttagttt	ggagttctgt	caagagtttg	720
tcggtcgctt	cgtctgactt	atccgtacct	cggtaatgcc	tgacttcatt	tcgtagatgc	780
gctcccaagt	ttagcaatta	cttgacaaag	ttctctctg	aatcgacgat	gaactcctgt	840
tgctcctcta	aaatcttggc	gattcctgcg	agattttttc	ctttctcgac	ttctccttgc	900
gactctgttg	gttgtggtaa	attggagata	ccgctttgag	ttctctgttc	tgttgcttga	960
tttcttcgag	tactt					975

(2) INFORMATION FOR SEQ ID NO:1304

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1068 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1068

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1304

cgccggcgag	ggagaaatag	acgaccatgc	catcatcagc	ggcggagtgt	gatacaccag	60
ttcgtagcga	tctctcagca	tgtgatgac	caagggtggc	ccgcctctcg	aaggacatcc	120
ctccgtatgt	actggtggga	cgggatctct	cgtttattgc	ggaatcaaca	tcgtaggtct	180
gcgcgcgcca	aatttcccaa	cgagcagatt	ttcctgatca	atgatattta	ccgcacactt	240
taccaagagg	actgaataat	tccgatgcga	tcgatattat	ccagcaggag	tacgcgattg	300
tcatgagaag	gaactttat	tagactttat	caagtcttcc	aaagcggcat	tgtccgcgga	360
accatggagt	gaagccatga	tcgggatatt	catggagcac	gcatcaagga	gcttgaccgc	420
tacacgatag	agcacgagcc	ttctcttcga	tcgatttagt	cgaacgagca	gccgccacat	480
gggtgtatga	ttcgaacgtc	tctacacca	gcagcgcggg	atcgtagtct	tcgccggcct	540
ggcaataatg	gagcggatgc	cctgtgtgca	gcccgtattc	tgggcgaaac	ggctattcgg	600
tggatgcctt	tctcttcaat	gtcagcggat	cgctcagccc	gaatgcaacg	aatgcagggt	660
acgcctgttg	gagacttcgg	ggatcagctg	accgaggtgg	tggacaactt	cattccgccg	720
gaactttcca	gccagccata	gtggtggacg	gtcttttcgg	cgtgggactg	aatcgtcctc	780
tacaggcgga	tttgccaagg	tcgtggagtt	cctcaaccaa	tccggagcag	agacgtatca	840
atagacatcc	cttcggggct	gttcgaagag	gataacttcg	gcataatccg	aatgccatca	900
tcagagccac	acacaccctt	acgttcgaat	acccaaacta	tccttcctct	tctccgaaaa	960
cgccgactat	gtaggcaagt	gaaagtccctg	aatatcggtc	tgagcgtcga	aggaaagcaa	1020
acgatcaagc	agagtatttc	ctcaataaccg	atttcgatat	atccggca		1068

(2) INFORMATION FOR SEQ ID NO:1305

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1108 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1108

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1305

aacaaactca	acaaaaaaga	atatccaatt	agcaagatcc	aatataatta	gaagtcggga	60
agttttcttcg	ggcaacttta	atagtcgtat	caacgatcaa	tgcaccaaga	acatataacg	120
gaaaggacaa	gaaccgctta	aattcaagag	ccaaatttat	ttgtagattc	gtcttttcatt	180
cttatattat	tatattaaac	cattgtataa	atatccattt	actcttcatt	tgcaaatggg	240
ctttccagac	aaactttagt	ctatTTTTTg	atcagattca	atgatttaag	caaagaaatt	300
ggctatcaac	agctcgcact	tttcaatagc	aagtgtata	acgaacaaat	ttaaggcaaa	360
aactgagaaa	tgagtctga	gcttcgtctt	ttgaacaggc	tgttcgatac	caatagcgat	420
aacaaataaaa	gcgcagcaac	cggcctatac	ggctgggatt	tttgctactt	ttgtagagcg	480
atagggagtt	tcgacaatgt	aaatgggtgt	tctggaaggg	cttgtctgtc	gaatagaacg	540
ctttacgaac	gtttactaac	tacttaatag	caacagatat	gatgcacttg	acttctctct	600
ttctatacgg	tcattagggtg	gatttcatgc	ggcctatcag	gtatgtacca	tcgcgtggca	660
tgtggacaaa	ggagatatta	ttccatagga	gtaagcacga	ataggcattc	gatagcttct	720
ataacgtata	aggcaccacc	cgattctttc	ataaatcaga	tgggtgcctc	tgttttatca	780
gcttcaatat	ggcatttttg	gggctgcgat	tgatatacaa	atcattttcg	attctatata	840
tattgaaaac	gatttatata	taaatggaaa	atgggtttata	taagatcggt	attcgatata	900
acgagaaaagg	tatttcaatc	tgaaaaagga	gatttccatc	tcttttgat	cataaccaga	960
cttcttagag	ccggcttatt	ggaatgattc	taaactcctc	ttcgctgttg	aaaacttttt	1020
tggcacctat	tttcggtcac	aataccgatt	ttcttagttg	tttttaggcc	taagatcctc	1080
tctctttcag	cctgcagcgg	tcgaggct				1108

(2) INFORMATION FOR SEQ ID NO:1306

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 432 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...432

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1306

gcgtctgggtc	atgatccatt	cacgtccgtc	caattcaacg	atgttatccc	ggttaaattg	60
gacacatcaa	tatacgccag	gccactgaaa	caggagaaat	gaaaatatcg	cgaaccaaatt	120
ccaatctggg	tatggatatt	tcttttcaat	gattcgcgtg	atttcttcat	cggttagaaa	180
ccctctgctg	gaatctgcgt	atgaaaccgc	ttgttcacaa	aggggtcatg	agacagaaat	240
ccatgctgcg	cccataaaga	gtaatggttt	tgaaaagctt	caagattttg	gttgctgtatt	300
cggacaacaa	tgagctacag	tcagcagata	tatctcaaag	ttagaatgac	caacggggta	360
agctctgaga	atttgagatc	cgttctgttg	tattcgtctt	gaggaatcgg	gtaaaatgcc	420
gttgctgggtt	tc					432

(2) INFORMATION FOR SEQ ID NO:1307

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 376 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...376

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1307

cgagccggac	gtatcacacg	gcatgattcc	catagtccag	catccctgcg	gaatatgatg	60
tgtgactacg	cttccggctc	caatgacggc	tccccctccc	gatgtttaca	cccggcaggc	120
tgtaggtttg	aaccagcctc	gtattatacg	tcagttcgac	gtaagaaaac	gccaatgaat	180
aattcttttc	ctgatcgagg	ctaattgccct	aaaattctca	gacaaatagg	ggtaccctgc	240
ttctgttgga	tcgaaccaac	attgaaattc	ggattgcttt	tttgaccgaa	tgttcagtc	300
gtacagaaag	atgggctata	ccatagggca	catggaggta	ctcgtagggg	atgacgagct	360
atccccgtaca	gctctt					376

(2) INFORMATION FOR SEQ ID NO:1308

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 496 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...496

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1308

gcgccagctg	acaccgcagg	agagacaaga	gctttggagg	ctgattcggg	tgtaaaacgc	60
accttgccct	atgccaaaat	gatcgagct	actctgatga	aacgtacgaa	tatatggaaa	120
cgatgcccga	tgagaaaagc	agacaaagca	tctcaagcgc	atggaaaagg	agatgaagca	180
gcaatacatg	ccggagtga	acgactgacc	ctccggcagg	ggaagctcct	gatcaagctg	240
atcgacgaca	gtgtgcacag	tcgagctatc	agctactcaa	agcttttctc	ggcgatggaa	300
agcgggatgg	tggaatctct	tcgcccgcct	ctatgggtgcg	agctgaagac	tcggtacgaa	360
cctgacaaga	atccggaaga	cgccctgacg	gacgaatagt	tttgtttagtg	gaagagaaaa	420
gaatttaaca	aagttctttg	cacttttcggc	aaaaaaggct	atattggcct	ttgtttttca	480
gagacgactt	gattat					496

(2) INFORMATION FOR SEQ ID NO:1309

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 492 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...492
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1309

tattccttat	agctggcagt	gtcctacaaa	agtgtctaag	ttcctaaagc	aatactcatc	60
gtacgcacat	gattcaaata	tctgttttgc	ttactcttaa	gtctctttac	cattacgtaa	120
tctacttgat	tctctttgac	cacattgata	cgctgcttag	atacattttt	gtcgcaaagt	180
tggctttttg	tacagaagtg	aggtttggat	agcttgctgc	gcgaagatga	tcaagtaatc	240
tccaacgtct	aatgtgattt	tctgtaaaat	ttctgtacga	aaatcgttca	tcaaggaatc	300
ggtttgttgt	gttctgtgtg	agtgtaaagta	aaccgcgatt	tttttgtacc	ctcttcgatt	360
tttcattgcc	gtcaaaaata	ccgcacccaa	ccctgtctgc	cgtaaaatttt	caaaagcata	420
ccgaagcact	ttcgtttaca	gttcaggaat	taagccctgt	ccccaaaatg	gttcgccaat	480
ccagaatcct	tt					492

(2) INFORMATION FOR SEQ ID NO:1310

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 987 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...987
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1310

cggtctctta	ttatgaatca	ttttcagttt	ataaaatcga	ttccaataat	atatagagaa	60
cgaaaacgat	tgcgatatag	accgttggct	ttcgatggcg	tttcggggaga	tgataaaaaca	120
gaggcaccca	ccgagttcgt	gatcgaacgg	gtgggtgcct	tatatccttg	gttgtcgata	180
ggaggccttat	cagtccttatt	gatcacaagg	atttttgttt	gttgtagggc	gaatggatta	240
gatacattca	gctcttggat	gagacggggg	cactgacccc	atttgtcaat	catgagagaa	300
cgtagcggat	gtccacgctg	attgtgcgct	gcagatcggg	ttcaactcga	tgtcaccact	360
catagcttcc	cagttgccat	cgaaagcaag	acgatcagac	ggccgttctt	atcgaatacg	420
gggctaccgg	agttaccgcc	ctgatgtcgt	tgttcgatag	gaaagcgata	tggagctgac	480
cgttctcggc	tagcgacctat	agtttttggg	gcggaagagg	tcgaggatat	tctcctgtag	540
gcaaactcat	cgctcttaag	gaatcctgct	tctccaatac	gcccttgctg	tcgtatgata	600
gttgtaccag	gcaccgtcct	gcgggttcata	tccttctgtg	agcctgtagct	catacgcatg	660
gtgaagttgg	catcgctcgg	cagagccgct	cggggtacat	ctcacgcaaa	ccggcacaaga	720
aaagacgctt	gccctctcaa	tggcataggc	attggccatc	gcatacgccct	gaatagcgcg	780

agcacagcta	ttacgctctt	ggaaagctct	actgccggat	cttttctcga	tagcttggca	840
aacttttcct	tgtccatgga	cttgagcatg	gcatggaaact	tgcgctataa	ggaaccacac	900
tcttgctgaa	tacgaagtct	gcatacttct	tgggtcgcct	ttgaattctt	ggcgattaca	960
ttcttgaata	tatcggggag	ttgtcgg				987

(2) INFORMATION FOR SEQ ID NO:1311

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 525 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...525

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1311

gatgccgagg	agcatgtgtc	tgatgccacc	caagctgtct	attttggatc	gtagtcctga	60
caggcttgca	gtagtttttc	ttccgaagca	tatacatcgg	tgccataatg	ttttccggca	120
ggatgtcgat	atggtcgaga	aagtcctgcg	caatttggcc	agacagccta	agttctcgct	180
gaccgggtgga	tagtatcgaa	tacgggtgaag	gcaatcacgt	tgccgaagct	gagtccttcc	240
tcgcgtgttt	ttgtatcagt	ttgtcgtaga	cgatgaccgg	cgaattgcct	ccggcagagc	300
cagggtgtag	tatttgtgtt	gtgcttgcca	ctcccgtata	tcctggctat	tttcgttggc	360
aatgacttct	gctgcttcgt	cgttgggtgcc	ggatatattg	gtcggatatat	tctcgaagcc	420
gacgtagcag	ggtctcttcg	tagtattctg	cggacgggta	gtatcgtccg	gtatttcgga	480
tagagaaatc	tggaacttang	ttcaatctca	tcttcttgtc	gtttt		525

(2) INFORMATION FOR SEQ ID NO:1312

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1975 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1975

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1312

cggctacaag	cgggagatga	gcggtgatga	catcggtgtc	cgattctcgt	caactgcgat	60
cagggggaaa	agatctatgt	acgatcggcc	gtttcattgt	cagcgaagcc	aatgcgctct	120
ataatctgga	agcggagcaa	gaagagggtt	caaaagtgtc	ggagggaatc	cggccaaggc	180
tttctccgct	atacgctcgc	cgctatagag	cgttggggag	aagccctcgc	tacggtggaa	240
gtggaggagg	cacaccggat	gaaaagacga	tattctatac	cgcactctat	caccgctgat	300

acatccgaat	atcctacaag	atgccaatgg	agaatatcct	atgtgggcag	tggcaaaacg	360
ggtaatacgg	ctcacgaccg	ctacacogtg	tttctctttg	ggacacgtac	cgcaatgtac	420
acccgctgct	ctgcctcctc	ttccggagaa	gcagttggat	atggtagcga	cactgatcga	480
catgtaccga	agagcgggtg	gctgcccaga	tgggagctgt	acggacagga	gacctgaca	540
tggagggcga	ccctcgctt	atcgatcat	atgacacttg	gcaaagggcc	ttcgtgcttt	600
cgatacggca	acggccctatg	aagccatgaa	aaaaaatctt	cttcggcagg	agcgacccat	660
ccgatccgtc	ctgacaacga	cgactactca	ccctcggtt	cgtaccgctt	cgcgaaacgt	720
acgacaattc	cgtatgcatg	cgctggaata	ctatctggcc	gactggaatc	tgtcccgtt	780
tgccacgcac	ttgggcataa	agaagacgca	gctctattcg	gaaacgctcg	ttggctacag	840
acactattat	ataaggaagt	atggtatgct	gtgtcccatt	gcgcgggatg	gatcattcct	900
cactcctttc	gatcccaaac	agggtgaaaa	ctcgaagcct	aatcccgtt	tccacaagg	960
cagtgcctat	aactatgctt	ttcgttcccc	acgatataca	agggttgcc	cggctgatgg	1020
gaggagcaag	gttttttcgg	aaaggttgca	gaaaagtctt	cgatgaagga	tattatgacc	1080
gaccaacgag	ccggacatcg	cctatcctta	cctcttctcc	tatttcccaa	ggaagcatgg	1140
cgaacgcaga	aattgaccgg	ggagttgata	gacaaaattt	ttgcaatgct	cctaacggct	1200
tgcccggtaa	tgacgatgcc	ggtacatgag	tgcttggtt	gtctattcca	tgctgggatt	1260
ctacctgac	tgctgggcag	ccccacctat	acactgacct	cgccggtatt	cccccgagtt	1320
aggttcggct	caatccgcag	tattatcctc	agggggagtt	gatcattacg	acaatacaga	1380
gaatcaaccg	acagattcca	tttacatcca	tacggtttct	ctggcaataa	aacacttccg	1440
catggaacaa	ggcatatcag	ccatgcggag	tggtgcgctg	cggtcacctc	cgttacgaac	1500
taagcaatcg	tcttcgataa	gccgaagtgt	cttaggatta	caagcatata	cctgagtttt	1560
tgatacagag	gttgcaactg	catcctgaga	ctgttgcatg	ggagtttcat	cgagctcttt	1620
gctgcagagc	tgattcttag	tgtcttcggg	aaaggtcaaa	ccttcgtata	tggacacagc	1680
aagcaaacag	aaatttcatc	aagtttccat	tagagagtac	tcctttcttc	gtcaaataca	1740
tgcttgtgcc	gataggcgag	aaataggaat	gattgtcggc	tgattcttgc	ttcctgcacg	1800
atgcaggacg	cgatgtcagc	tgattcttgc	ttcctgcacg	atgcaggacg	cgattgtcaa	1860
ctattcttgc	tccctgcacg	atgcaggacg	cgattgtcaa	ctgattcttg	ctcctgcacg	1920
atgcaggacg	cgattgtcaa	ctgatttttg	cttctctgcac	atgcaggacg	cgatt	1975

(2) INFORMATION FOR SEQ ID NO:1313

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1066 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1066

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1313

cgctgctctt	gataagatcg	tgacacagttc	tgttttctcc	tcccgattct	ctcttttgcc	60
gactctccgg	cttcttttgt	taggttgtct	ttcccgaag	cggttatcga	gtgtcgggt	120
ttgtggagga	ttcttacgtg	caagtcggtt	caaacacct	gttttcaaaa	ctccccact	180
ctgctctctg	tctgctccgg	ttatagatat	gtgtcttcgg	attattatta	tgatggaccg	240
atgattttgt	gggatatgga	gttccggaag	ccaaatcggt	cgatgctttc	ccgaggagga	300
gaaagctgct	cgggcagatg	cggtaaatga	agcagaacct	gaacgaagga	atccgggatt	360
caagaatcct	ccgtgcgtac	caatttcgct	gaactgcatt	ctttgagccg	gcattgctga	420
ccgatgaacg	gggcgaagtt	tttggctttt	cactctgccc	gagacactga	cgcgctggca	480
cctgctctcc	ttgcacatac	gaaggatatg	cggttgggga	tgaaagacga	aagcgtggag	540
tgcggaaaga	ctttatgctt	acacccaatt	tgccacgatt	cctgagaagg	gtgacaaggg	600
tacggcttcg	gcttcgattc	ggaacgggag	cgagacgtgc	agcagggtct	cgctccgtatg	660
gaactgttcg	accctgctac	cgacaactat	tgggcggcga	gaggcttccg	ttctcgggtg	720
aagccgggtg	tacgggtacg	tgctggttcc	gctcgatcct	gtctccggat	atgatgctct	780
gggttacgtt	tgtagccga	aagccatgac	ttcagcgatg	gagagcaaca	ctcatcgtgc	840
aactgccggc	tacggagcga	gtgggtggaga	ccataaccgtt	gatctctacg	gcggacagtc	900

```

ccaaacggtg gatctggata gtctatttcc catcgcaacg gcagaccggc tatgggtaca      960
atggcacttc aggtgggtgag aatccgcttt ggggtggccgt acaggccttt gcccgtgatg    1020
actgatgtaa cgaggaagat gccggtttcgt ggcttcgctc tttatg                    1066

```

(2) INFORMATION FOR SEQ ID NO:1314

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1101 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1101

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1314

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tcgtatcctg cttaccctcg gtatccccgt atacgactct gacagcagac caaatggctc      60
aatgatcaca gccctgtcgt ccgacaggca ctgacgggct cataggcagc gatctgtacg      120
agaacggcat actcaggcga gacaggcggc tacggctatc ttctcctccg gcgatctcct      180
cgaacaggta aacgggtcat acatccggaa gtcaaaaaag acttctgccg atggcggttcg      240
gagtggaatc ggatctctgc gccatcgaga gtgccattct tttcagctcg ggatcaactc      300
cctgtgcgat acggtaattc gggtcgatgc ccccgaaaag atagacaaga gcggnccgatg      360
gctcgcgacg gctcatcggc agaaaccatg agcagcgatg gctcagccaa gaaagagagc      420
agtcattggc caaggccgga gagaccatac ggtgctcaac gccccacccc atctacttgt      480
ccctcaagtc tcagaattat agagacagta cgaacaaaga gacccaatcc gcccgatcgc      540
tttaggggaa taagacagggt gcttccctgc tctcctaccc ctgcacagaa cgaaatactt      600
acttttgcag acagtcaaaa actgaaatac aatatcataa cagaaaaata tgttgcaacc      660
catcctttcc atatccggga aatccgattg tttcggctcg tatcgcgcgg aaagaatacg      720
ctcatagtcg aagcctcgac acgaaacgta gaacccccac ataccatcg ggaccgagta      780
gttccccctg gcggatatatt ccattttacac catcgaagat gatgtccctc tgcggagggtt      840
atggaaacga tataccggaa gaacgaaggc aaacagctcg atctcctgct ctcacgaagg      900
acaacgactc actacgtgct ttcttcgggg agtactgccc gaatacgacg tcgatagagt      960
atatccgagc gatatacgca gattatctct tggtaacaatc ttctgggtgga caacggattt    1020
accactttct ctcgataag aaaccggcgg aagaagagac gacggaaaaa gaatagcaac    1080
ttcggcgggg gatcgtctag a                                     1101

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(2) INFORMATION FOR SEQ ID NO:1315

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...690

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1315

cgaagtatcc	gagcaaagaa	gaaaatagaa	aaacgataaa	agtagaatag	catacgacaa	60
tggcaatgca	gtatctgcaa	agatctgggg	gataaaaata	tcatgacaat	gcccccaagc	120
ataacaatag	aggcaacaat	aaaataaccc	acccctgaac	ggaaacaatc	tctcgtattg	180
tctctcgatc	attctcgcaa	tcggcttata	taatgtaaat	gatatagccg	tagctatccc	240
catctagaca	agttgagaag	gcctaagaga	ttagtaattg	tagtattgag	tcctggagtt	300
cggcacctaa	ggcatcaata	aaaactctac	gtgagaagaa	agtaaaataa	taagaagccc	360
ataaaacaaa	agtgagatta	tactattttt	tgactattgg	tcgttcgaga	agtctccacc	420
agatatttct	ttatagttga	taaataataa	gacattgcac	aaaacataaa	ggcattgctc	480
cacctcatat	gggaatctta	gagctaaggc	caggcttcat	ttgatagtaa	aaatagccct	540
cttatcctgc	atactgctaa	tagtccaagc	cataaccgga	tccaccaatc	acgatgttcg	600
tcatagcgat	gaagtctagc	tagcgacacg	aagagctacc	aggacatgat	gtcgattgga	660
taagtcgatc	gggataatac	tgggcaacca				690

(2) INFORMATION FOR SEQ ID NO:1316

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 695 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...695

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1316

aacaatatga	cgggggtgga	atacagcttt	ggcaaagtct	gcaatcctat	tacgggggatt	60
ccgtattcgg	attcgtgagc	aatagcggta	tcaagataac	cgcacggact	gcccgaatgc	120
gccggatatg	ttcagccgat	acggttacgc	atcatcgaag	ctcgctggag	cggtaagggg	180
tcgaccggat	acgaggtaca	cttcatgtca	taggacagga	caatctggcc	atcgtgacga	240
acatacttcg	gtcatcaata	aagaaccagg	cgtatcgctc	cgagcctatt	cgataattcg	300
aaggacaatc	tcttcgaagg	ggtgttcacg	gtcgaagtac	ccgtacctcg	acactatcca	360
tcctccttcg	caagatccgt	gctacgcgat	ggtcaagtcg	gccgaacgac	attgacagcc	420
ccttgcaagt	ctttagtagt	gagtacatgg	tctggatgat	gtgtatcgta	ttcttgagca	480
gaacggcttg	aagtcttttag	tagtggagta	catggtttca	gacagaatag	cgtatatattc	540
tatcaatatc	gtgtaatggt	ataagcggat	aaggatatggc	gagaatcctg	ccaccggcag	600
gaaaaaagct	gacggctatg	cgtttatcac	aggcctctca	aggaggtata	aaataaaaag	660
caatggctca	gagttagtta	atagggatta	cgacc			695

(2) INFORMATION FOR SEQ ID NO:1317

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 767 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...767

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1317

gaccatagta	tcctctcata	ggagaccata	gtatcctctc	ataggagaca	tagtatcctc	60
tcatgtgaga	ccatagtatc	ctctcatatg	agaccatata	tcctctcata	ggggaccata	120
gtatcctctt	gtatgagacc	atagtatctc	tcgtggaagt	tcattctttg	tatctcaggg	180
aaagaccggt	gagcagtgtg	tcgctgtcaa	gtaaacagag	agcagtgcc	gaatacgttg	240
ccaatgataa	gcatatcgac	ttgggtcgaa	aatacattcg	ggctttccta	tatcattcgc	300
tggcatgacg	tccctgaatg	aaacctcttc	tcgtcggatg	atttcttgt	tgtgccatcg	360
ttttgtgtca	ttgagatcat	accataaaca	caaaaacaat	cggccgacac	actgtaaaat	420
gaatggataa	agtgcctgct	tttgccgaaa	ggtctcagaa	aagaaaaaaa	cacaaagagg	480
gcgcacgggt	agatgcgccc	tctgcttttc	agtcgcccct	atcttcaggg	gattatttag	540
cttgtctatt	gagcctttgc	aacaggagcc	atcatgacaa	caaccgac	tgctgcttca	600
agaggtctgc	cgcaaacttt	tgcaattcag	caggagtaga	ccgttcagta	cggattcgtg	660
gtctgtgatg	aagtcatttc	cttcgagaaa	gacgccttca	gggcttcgag	ccagaaacga	720
ttctcacgca	gacttccttg	tgctgcttat	tcagggggac	cgagggg		767

(2) INFORMATION FOR SEQ ID NO:1318

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3782 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...3782

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1318

gtgctgttcg	gtcttggcca	tgaagtccctc	catatctacg	ttgcctcgcc	gtcgcaagct	60
accgtcaccg	tatcgtatcc	gcactggatg	gcactggcgg	attggtaccg	tgggcagaag	120
ccggcaggat	aaccagatgg	cggtgtcctg	tccgatgctg	ttcagatagc	cgcaaatagt	180
gagcaatccg	gtgtatcgcc	tgctgcaccg	gagttaggtt	ggagcgaaa	tggcatcgaa	240
accgggataa	cggccaagta	acgttcgagg	ctttcgagca	tctcgttgta	gcctccgtct	300
ggtctttcgg	agcatacggg	tgaatggcat	tgaactgcgg	catgagaggt	tgaacagctc	360
ggatgcggca	ttcagcttca	tcgtacaaga	accagcgga	tcattggagt	tgccagtga	420
atgtccttgc	gttcgaggcg	ttgatgtagc	gcatacagctc	tgtctcgggt	tggtagtgtg	480
tgaatacgtc	tagtccagga	agttcgaggt	acgggcaaa	gcaccgtcga	aataccgttg	540
tcgatggcaa	tgtcctccga	gattgtctcc	tctttgcccc	aaacggatag	aagatataga	600
gcagaacacc	gaggtcggac	ggcagtgtat	tctcgtcaaa	ctgatcagga	tgctgccatc	660
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cgagccggag	agcttctcgc	tgataaatcc	tgcataagca	tgtaccctgc	cggtatgtgg	840
cgcaagccat	cggcaccgtg	atacacggca	tagaagctgc	tctcgtagcc	aacaaagctt	900
gtgcggtaca	gatattcgat	gtggctttct	ccgtttgatg	tgctgttcgc	gcgtttgcaa	960
tgccagacga	taagccggac	tccgtaagca	tctttggaca	taccgataat	acggccgggg	1020
atgttgcgtt	gtagtccata	ctcgtagcca	aatatcctgc	tgacggggccg	ccgtaataat	1080
gggaataaccg	aaacgctgtg	ccgatccgaa	tacgatatac	gcccccttc	tcccggagga	1140
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ccgcttcgat	gaatgattta	taatcttgac	agatccttct	gcacgcggga	actgtacgat	1260
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cccagggat	gatacgggtg	cggatcactt	cgatcgtaga	gcggaatacc	ttttgtccac	1380
gaagagaacg	ttggcaccag	ccttgatttg	tgtgcgcgaa	cggtatcgaa	gaacatacgt	1440
gcagcttcgg	caccggcagt	ggcttcgtcg	ggagcgagca	gttcgtcaag	ggcagccccg	1500
tcagttcgg	gatcaccggt	ggaaattgaa	gagagcctcc	agacgcccc	gtgatacttc	1560
cgctgatag	gcgtatagga	ggtgtaccac	gcaggattct	ccaatacgtt	gcgctgggtg	1620
gagccggcgt	gaccgtatca	taccagcctt	gtccgatgta	ggaggtaaga	tcttgttctt	1680
ggatcccagt	tccatgaaat	gttcgagcag	ttcgcctcgg	tcatggcttc	gggcaaatcg	1740
agaggctcgg	gcagcagaat	gtcgcgggga	tctgttcgcg	gatcagctga	tccattgact	1800
ctacgcctat	ggtcggagca	tgacggagag	gtcgcgctcg	gcaataccaa	tatggcgggt	1860
ttgaatttgt	tagtattcat	tattctaatc	gagaaaagg	ttattagtcc	gtcgtaaagt	1920
atcgtagaag	taggcccgtg	tccggggtag	actaccgtat	gtcgggaagg	gggagaagtt	1980
ccgtacgaat	gctctttttc	aggagttcga	gctgcgcgcc	cataagtcgg	tccggcccat	2040
atcgccagca	aagagcgctc	gccggtaaat	acagcttggt	cctgcgggca	atagaatgcc	2100
agatgacggg	cgagtgcgcc	gggacgaaaa	gcaccttgat	gatactctct	cccaatgaag	2160
aacgtcgccc	ggagcaatgt	attgtatggg	cggttcgtcc	atcgccgaa	catgccgaag	2220
gcagccagtt	gcttggacgg	agaaggcatt	tcttcacttc	agcccgatgc	gtgagcacag	2280
gcagaccgaa	ggttttagct	gcaagccgtt	gcccagggca	tggtcgaagt	gcaaatgtgt	2340
attgagcagg	agtttactgt	cagttgctgt	tcttgaacga	agcggagtag	ctgctgctct	2400
tgctcccatc	catacagccg	cagtcgataa	gtgcagcttc	gcccgtggag	cgtaaaggat	2460
atatgtattt	tctgccaccg	aattgaaggt	gaaccttta	cttcagtcgt	tgtcatagag	2520
gtaagtagac	cacttttttt	gttttgaata	ctcttcttcg	aaggtcggcc	atagctcctc	2580
tgctattgcc	ttgttccgaa	tggcagtatc	tctgtctgaa	gctcgccacc	cttgagacag	2640
ataagccgtt	cgggagcgca	ttttgctgat	cttcacgccg	gatgagtttc	ctgcaatctt	2700
ggccagttcg	ctcagcttca	ttactgcacg	gctgactatg	aagtgaattt	ctcacctatg	2760
ctttctgccc	gacagtgcac	agtgcgcaca	ttgcaagccc	caatgcttca	gctacggccg	2820
aagccacttt	cacctttttg	ccatgctgtc	caccagcagg	aaagagactt	gagggaaacaa	2880
aatcgccagt	gaataccggg	gaaacctcca	cccgtaacca	aatccaatac	acttgtgccc	2940
gtttgaagtt	cagcatgcga	gctatcccca	aagaatgcaa	cacatggtga	gatacaaat	3000
gtctatatcc	tttcgggaaa	tgacattgat	gagggcatcc	aatgcgtgta	cagccctccc	3060
atttgctcga	attgttcgcg	ttgccgtcgg	acaagtgggg	gaagtatttc	tcatatcggt	3120
cggtagctgc	cggttggaca	gcggcttttc	gggtatctcc	tgcatattgg	tcatatcggt	3180
cgaagaaaag	gaggggggcta	cggcaagtaa	cgcttttagt	gggaatcatc	ccttgcaaag	3240
gagccaatac	gtcatatccg	agacggacat	agacagcacc	tctgcataag	cagctatctg	3300
atactcattg	aaacagtatg	tgagaccttt	gtatcgatca	taaaattgcc	attgggctgt	3360
atctcttctg	cgttgaagaa	actattgcac	ccaattcggc	aggtgtgggt	ttgccgaaat	3420
cgtgcaccaa	tgtcctatga	tgagtgcgga	cagcctttcc	gcatagtcga	tcttgaataa	3480
tctcgtctct	cgagcacctt	gccgggtggg	cgaaggatgt	tggcaaacgg	actgtattct	3540
ccgtatgtgc	accgccttcg	taagtatcgc	tattgatcgc	gtggagatca	atcccgatc	3600
gcaataagcg	atggtatttt	cctgctgtag	atatagtcca	aaaggtcaga	aggaagccct	3660
tgcagattgg	cttcgcattg	ttagagcgat	agtcttctcc	cagcatctgt	gcatagcctt	3720
ccatgcattc	tccggcgaag	aggaatccat	caggctgtcg	ccgaagagca	aacgttgaaa	3780
at						3782

(2) INFORMATION FOR SEQ ID NO:1319

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 964 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...964

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1319

gccaaagccg	ccgatattct	tttgcgtaga	ggctattttg	tttacaacct	ctgggaggat	60
ataaagcta	tccgtacaag	taagtatac	ctggagagtt	tccggacagg	tttctctact	120
tgctctctac	ccatagctct	tgttttctct	cctttacccc	gaatggatcg	tcctaagcct	180
tcatatattg	ttcgaagca	gccattctct	gcttgtttgt	cggcaggcct	ttgtttgcgc	240
agagcatgtg	gactacgtcg	atccgctgat	cgggacgcta	agttcttttg	agctagtgcg	300
ggcaatacct	atccggtgat	cggtttaccg	tggggaatga	atactggaca	ccgatgaccg	360
gtgtaccccg	tgacggctgg	caatatacct	accggcacac	aagattcgcg	gattcaaaca	420
gaccaccaa	cccagtcctt	gatcaacgac	tacggccaat	tctcccttct	tccccttacg	480
gcaccgcaga	gccatcatcg	aacgactcca	tagctctgac	taaattggtgc	aagcaactct	540
ttcggacgaa	cagacctcgt	ggttctcgca	caaagcggag	acggcgaccc	atactattat	600
agtgtctatt	tggccgatta	cgacacacgc	gtggagaggc	tccgaccgag	cgtgcagcta	660
tctttcgcac	acgttattcc	ggcaatccga	aagtggctcc	ggtcgatggc	ttcgtcttga	720
tgcctttacc	ggtggtcgga	gattagcatc	gtggatcctc	acaccgtagt	gggcataatc	780
cgcagaatag	cggagggtgtg	ccggctaact	tgcctgttta	tttcatcctg	cagccgatac	840
tcctatggcc	gatgtcctgc	ttgagacaga	taccggcaag	tcgacgaagg	cacaaggcca	900
tgggcagcct	gtcgcttcga	ttcgcaagaa	gtaccgtccg	ggtggcatct	tcttttatca	960
gtgt						964

(2) INFORMATION FOR SEQ ID NO:1320

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3597 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3597

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1320

aggtgtcgga	agaagttgtc	cttgaccacg	cgttttattc	ttgacgaagg	catcaccttg	60
gtctgcgcac	cgccgaagca	gtgtaccatg	ccatgaatcg	acgactcatt	tcgtccagta	120
tggccttgac	cacagggcg	taggtactgt	ggcgagagc	acgagcttgc	ctgcgtccag	180
ccccaatccg	gctatgcac	ggtcagcttc	atgctgccgc	tatagaccaa	atcgtccggc	240
accgaggatc	gaaactctcc	ggatacttct	ctgccagata	gtgggcaaaa	acgtgtggcg	300
agcagaggtc	agtcggttgc	tccccatacc	gocgttgtac	tgtcctcgta	ggaagcttgt	360
ccgaatgagg	ctaaccgcac	gataacgtcg	ccgccttgat	acgggcattg	tctatcacat	420
ccgatcgctt	catccggcaa	gcaccgtact	gtccacgatg	atagtcctga	cgagatcgcc	480
cacatcagcc	tttaccctcc	cgtggcatag	gcattcacac	ccatgcgacg	cagatcggca	540
ggagtctctc	cgtgccgttg	ataatagccg	ataccacttc	gcccggtaaa	gccgtttgtt	600
ccggccgatg	gtcgaggaca	caagtatatt	atccacgcac	cgacgcacag	cagatcgtct	660
atattcatga	tcagcgcac	ctgtgcattc	ctttccatac	ggagaggtct	cccgtctcgc	720
gccagtaaac	gtatgaagcg	agcttttggg	gcccggcccg	tcggcatgca	tgatattgca	780
atagcaggat	cgcccccgag	aatatccgga	ataatcttgc	agaatgcctg	aggaaaatac	840
ccttgtccac	attctttagt	gcggcatgca	catcctcttt	cgggccgaca	ctccgcgcag	900
gttatagcgt	tcgttagaca	tatagctgct	tgtctttgtt	ttcttgtttt	agcgcaagcg	960
cagtatatcg	ccctcttggg	tatatattcg	ccatccttgt	cgttgagctt	gtagaggttc	1020
ttcatccggt	gccatagcgt	tgggagatac	tgtgcacgca	atcgcccaaa	cgcactactg	1080
ctgtgtgtgt	ttggagatgg	agcatgcgtg	ctttttctcc	agatagacac	atcgcccttt	1140
tcgatcggga	aatccacggg	agcatcgttg	tatttgccag	tttgagggtc	ctcatgtcga	1200
actcttcggc	caaagaatcg	aaggttcgcc	ttgcttggct	atgatgtaga	gcagtcctga	1260
gctgaagtaa	gcttgtgctt	gagtcgcctc	tgtcttgcct	tggtcgtttg	atgggatttt	1320
ttgtggaccc	ggggtgaagc	ttgtggaacc	atgaggggta	cttctcgcga	tcaaagcata	1380
tagctcatac	agctccacca	tcttgatcag	cagattggca	tgccccgatt	ggtggcatag	1440
ccacagcggt	gcaaccccg	agcccgagcc	gatagtcttc	tctgtcgagt	ttgaacaggg	1500

gacgatagcg	tggttgagaga	gaaatcggga	atgatcttca	tacgattcgc	gagcggccga	1560
atagctgcga	agcattcggt	cggcgcatcg	tcggtacgat	aggtgcgctt	gcccgtcacg	1620
atgtgtggca	tttgatcccc	aagtgtattgt	tgtgtacgct	ggccagggtac	tggtccgggc	1680
tcctgtctcc	accaaagcct	gtgctatggg	gatgctgccg	gtatattgta	gcggctcatc	1740
tgctcgatag	cttcgtcggc	gtacgtttca	cataagcctc	gtatgtacgg	tttcgactct	1800
gagcctgtcc	gattgctgtcc	cgaagaaaaa	gagaaccgaa	acggaaagta	tctgccaat	1860
gttgctctca	tctgtttgaa	atagttgcaa	caaaacaacg	ttagctacaa	agtacaaata	1920
aattgcagtc	cgtcaggagg	attcggagcg	atctcttttg	aaattttcag	tctcttccct	1980
ctataatttg	aatccctgag	atatgaattg	tgcttgtttt	gataattgaa	tgtagcaatc	2040
atgaagctat	acgtacatag	gagttcaagt	gcgattgccc	tgagtgatct	acacctctt	2100
tatttgcctt	taatacggac	aggggatttt	ccaattcctc	aaccaataga	tcgaccttgt	2160
acaggggttg	tgattagcat	aatctttatc	cttggtgttc	aagcgagttt	ttcggcatat	2220
cgctttgcta	aaattccatc	tccatgggtct	ttcataatgtt	gtaaaaggag	ggatcattct	2280
tattgtatcg	gaaagaatta	tcataagtcg	cttttgatc	aagttttcaa	gtttggaaat	2340
gtaagcatca	cgctgatagg	tacatccaga	tattggaaat	ggagaaggaa	ccacaattca	2400
aagcttcggt	tgctccaagcg	catccgaaac	catagctctt	tgcaaggctg	tagcttgatt	2460
aaaatcatca	aaatcgtctt	tatcaaagac	aaccacaatc	gatcaaagcc	taattcacgc	2520
tctttttcga	gattatcccg	aatctcttgg	ctcgttcgac	taatgcacaa	gtagaacaac	2580
cttgctccct	aatctctcct	cacgaacttc	cgagtagtgg	ttgtcaatca	aagccttaaa	2640
atagttgggt	ccgtcttttg	tccttcacaa	acgatcagga	atcgaactat	tatgtccggg	2700
tattctcttt	gcgttttctt	gcggcttttg	cttctcgctt	ttcagtttta	gtcgttctat	2760
ttctcttttt	ggtggttgtc	ccatggtctt	acattgaaaa	aatgaacggg	atagctccat	2820
aacgtccggt	aatatagtcg	tttgaaaact	ccgatcttta	cgaactttta	ctccttctgc	2880
atctcgaaac	ttatcaatga	ataaagatcg	gaggattctg	tcctgtcttt	ttccgtgaac	2940
agatttgatc	acggcgtaaa	taatcgccct	tcagcagatt	tgtgtcgtgg	tattaaagat	3000
caactgtgct	ccattgggat	ttgtctccgg	agacataaca	acttcagaat	acttctggtc	3060
aaaagggggg	ggagtttggt	atctaatacgt	ctatcagcaa	aacagaacct	tctttcaatg	3120
tgctgaataa	agggccgaaa	gctctatgac	tttcttggtt	ccttccgatt	ccatttcac	3180
cttgggaaaa	ttttttcctc	gacctgatta	ccgtcttggg	catataccca	atgaaagttt	3240
tgatttctaa	tacgcttcgg	ccatcgaaat	ctttcaatat	gaatctttca	attcatccgg	3300
tacttccttg	agtacatcgt	tcgaaagagg	ttctctgtga	cgatcaagtc	tttgaatcct	3360
aactgcgtgc	gacggaagaa	gctttggcct	cattacatcc	ttccggattt	tctttgagca	3420
ttttcagggt	aagccttcat	aaccctgttt	ttctacaacc	gaaataagat	tgcaagtgcta	3480
aaccagttca	aaatagaaga	tgatttcttt	ccatttagct	gcgcacacag	gacacaaaaa	3540
gtctattccc	gggcgtagca	tctgctttgc	tatcacctcc	ggaaatcgct	tcttgga	3597

(2) INFORMATION FOR SEQ ID NO:1321

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 756 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...756

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1321

gtgtcggaaac	agctaagaga	cgggatagcg	ttcttcgccc	gaaagtaccg	cacatgaaat	60
acctggccta	tttccaagcc	tataccaata	cctatggaag	caagccgaga	tcattccgtaa	120
atacgaagag	gctctgaact	actacgagta	gtaggcatta	ttatagggtac	cagaccggac	180
tgcatgccgg	attctctttg	tcctacttaa	aggattttgtc	ggaaagagta	ttcgttctcg	240
tggaatgggt	gtagagagta	cactggatgc	cactcttcgg	cgagtgaatc	gtggcacctc	300
tggtcggata	gtatggcagc	tatcgagcga	acggctaaga	ccgattgccc	ataggtgtgc	360
atctgatacct	cggtctgccc	ggggaaagca	gaaagatata	ctcaggcacg	cggacaagat	420
atcggcattg	cccgctacta	cctgaaattg	catcaactgc	aaattatccg	cggtagcggt	480

atggccaaaag	atatgcagag	agtcacctcg	acttttcattt	ttactccgag	gaggaatatt	540
cgatctgtgt	cttgattttca	tcgaacgcct	gcgtcctgat	attgtgctga	gcgttttcgta	600
tcgcagtctc	cggccgaact	tctcctgatg	ccgaaatgga	ttgaagaatc	acgagttcac	660
acacctgatc	cgtcgtcgca	tttcaaaacg	cgatatcaga	cagggacgga	ctggaaaagat	720
aattcccttt	gctattctac	aggaagaaac	cggtgt			756

(2) INFORMATION FOR SEQ ID NO:1322

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1349 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1349

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1322

ggctgataga	gcgacaatta	ttcggggcacg	tacagataga	ggaacgaggg	agaatagaaa	60
acctcgtaga	tgatgggaca	ttcgtccatt	gccagcacca	aatctacgct	taaatcacag	120
gccaaaagat	tgcaaaagat	atggagagct	gataaagaaa	tatacgggtg	ccgttgtaaa	180
tagaagaggt	tttattaaga	tccacaatag	gattgtgtag	ttttgcatcc	gtcataaggt	240
ctccttacgt	catgaacaga	ttaagggaag	cattaaaaga	aaggggaatt	actcaacgga	300
gctttcaact	cgcttgggca	agagctttta	tatggtcaat	ctcatgttgc	caacaagcat	360
cagccctcaa	ttcctaccct	cttccaaata	gcgagatttt	ggatatggac	gtaagagatc	420
tcttgggtatc	taacaagcaa	caaacaaata	atgaaactga	tagatataac	aaaaggatcg	480
gaacacgacc	cagtcctttt	tcagacgaaa	agattgccac	attagagtct	cgtatcactt	540
aaaggaaggg	aaaaaaaggg	ctatttccta	tctttcctgt	ctcgttcgaa	gcaggagatt	600
aagcttaccc	ccgaggaggt	agtgcgtcag	ttatatcaat	ggtgcttacg	gaagactttg	660
gttatccact	ttctcgcctc	aaattgagta	tgaggtaacc	ttcggtcggg	aaaagaagcg	720
agccgacatc	gtcatttcga	caagcaacaa	acagatagcc	cttatatcat	cattgagggtc	780
aagagccgaa	actcaaggat	ggtaaagagc	aactcaaaaag	ctattgcaat	gccctggagc	840
acccatcggt	gtatggagta	atggcaagag	catatcctat	tacaccgtaa	agaccctaac	900
tattttgaag	acatcagcaa	tatcccagag	gtgatcaaaa	actttcagat	attcctttcgg	960
agcgttggac	gatagcagac	ttatagaaaa	agataagctc	attagcgaac	gcaagtcgct	1020
caaagacctt	tcctcgaaat	ggaagacgaa	gtgttgccag	gagctggggg	ggatgtgttg	1080
aagagggtatt	caaacttatc	ttcaccaaac	tttttgatga	gatggaggcg	gacgcaacaa	1140
tgagcgcaac	ctcgagtttc	gcaactatgg	cgatacgaga	ccgaactcaa	agagcgcctc	1200
caaaatcttt	ttgataaagc	tcgtgcaaat	gggaagggtg	attcagcccc	gatgccaaga	1260
tacagctgac	gcccctcacc	tttctgtctg	cgtagcatcg	ttgcaggacg	ttaagctctt	1320
caatccaatc	ttgatgtggt	gggcgaagc				1349

(2) INFORMATION FOR SEQ ID NO:1323

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 496 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...496

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1323

```

ccggcggtata tgcctacccc ggtactccct ctacggaaat caccgagcaa tccaaaactc      60
tcggatggct aaggaaagaa atgtccatcg ggaatggggg caaacgaaaa aaccgctatg      120
gaatcaagct ctcggcatgt cctacgcggc aagcgcgctc tcgtatgtat gaagcatgtg      180
gggatgaacg tagcagagac tgctttatga atgctgccat caccggtgcg aatggcggtg      240
tggtgtcgtt gctgccgacg acccctctat gcaactcgtct tcaaaatgaa caagcttttc      300
gcgtgtatgg ccagttngcc atgattcctg tgatggagcc atcaaccaac aggaagctta      360
tgacatgacg cgccttgcc tgcgtctatc cgacgtttgg gtacaccggt catgatgcgt      420
attacgactc gtctcgctca cctcgtgccc gtgtcgttca gaccgagccg atcggagaga      480
ncgaattgca ctgccg                                     496

```

(2) INFORMATION FOR SEQ ID NO:1324

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1005 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1005

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1324

```

gcaaggagca gtttttcttt cattgttate tccccgcct gtagcatata tacagagtca      60
gcacttgtec ggtaccgaag cggccgatta gcctgcagat ttcagcacct tgttcaccag      120
agcattttct tgatagtagg aggcataatc gatatgtccg ccagggtggg cgggagctta      180
tccacaaacc ctttgacgca ggttgccgcc ttttctgaag atggtttctt ttcattgtcat      240
tgatgcgtct attatgctta atacgctggt tattagggtt tctcacctat tcgatatctt      300
tgtgtctgtg gcaggaggga acgaatcttc caaccattgg cttaacaaca acaaagaaac      360
agcttattat gaatagtgtg caatttcgcg aaaacttctg agtctgcaag acaatatgcy      420
caattttgcc ctgactctga cgccaatcgg gatgatgcag aggatttgct ccaagataca      480
actctccgtg gcttcataac gaggacaagt tcggtgataa tgtcaacttc aaaggctggg      540
gctcactgtc atgcgaaata tcttcataca caactatcat aagttgggtc ctcacaaacg      600
gttatcgatc ccaacagcga tccgtacaat gtacctccct gaatgaggga ggagaggata      660
cgcccgatgg cactatgacc atcaaaagat aacggcggcc attgcatcgc tgaatgagac      720
tctcaagcag ccatttccat gtacgtgagc ggatataaat acaatgaaat atccgagact      780
cttgaatccc tctcggcagc gtgaagagcc gtatatctt tgccagacag gaatccagca      840
gcaactcaag gacatgagat aacagcctgc tcagcacaca cacctccatc gacaacagta      900
tcaaaaaagg gtattcggtt aagcctctga agaccgataa cgaataccct tttttgttgc      960
aacagctcgc taaggcgaga gttcataact gaaaaagaga cataa                      1005

```

(2) INFORMATION FOR SEQ ID NO:1325

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 967 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...967

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1325

gcctccgatg	tggatgaatgc	cgtgatcatg	gctccactc	gcgaactggg	cagcaaatag	60
atcagcaagt	ggaaggggtt	tcttacttca	tgccggtacg	gccgtagcca	tatacggggg	120
tacggacggg	gtggcatggg	agcagcacgt	cgggggatgg	ctatgggggc	ggacatcgtg	180
atagccacac	cgggactctg	atctcgcac	tgaatctcgg	ttcggccgac	ctctccccacg	240
tctccacttc	gtattggacg	aagccgaccg	catgctggac	atggggttct	tcgagacatc	300
atgcagatat	acaagcagct	gccgagttcg	tgccagacgg	ttagttttcg	gctacgatgc	360
cccccaagat	ccgcaagctg	gcagcatcta	tttaagggat	ccgatagagg	tggagatcgc	420
catcagccgt	ccgcccgcga	gatcatgcag	agcgcataca	tttgtcacga	agcgcagaag	480
ctgccgatac	ccgcaagctc	ttcgagcagt	cggctccgaa	gcgtaccatt	attttcgccc	540
ggccaagctc	aaagtgcgtg	agctgacttc	cactctccgc	aagatgggtt	caatgtggcc	600
gatatgcact	ccgatctgga	gcagtcccag	cgccaacggt	gatgcgcgac	ttcaaaaacg	660
gctatgtgga	tgtacttgtg	gccactacat	cgtagcgcga	gggatcgaca	tcgacaacat	720
acgcgtagtc	atcaatacga	cattccccac	gatcccagg	actatgtaca	ccgtatcggg	780
cgtatgcccg	aggaacaaac	ggggagggtc	tggctatcac	tttcgtctcc	gagaagagca	840
gagcgacttc	cacaagatcg	agacgtttct	gggcaaatcg	gttataaatt	gcctgtcgat	900
ctggagtttg	gtgaagtccc	ggcttacgaa	cggcgaaacg	tcgccctcgc	cgtttggggc	960
gaagcgg						967

(2) INFORMATION FOR SEQ ID NO:1326

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 579 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...579

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1326

ggctgtgaag	tttatgaata	gattcgggga	agaattgata	agaggtgtcg	ctggccgaag	60
tcataacac	gctacttgct	gcccattgaa	gggttttctt	ggagaaagtc	gggaaaaagg	120
ggattcccat	cgaactccgt	cctgcacgt	tcggatcag	ggtgcatctg	cttcgattcc	180
gaatatagcc	ctccttgata	cacatagtgc	cctaaagctt	tttaacgtca	gttcgacgtc	240
tatatataac	gtgagttcga	tataagcgtt	atggtgccga	ctctcataag	tattgtcgat	300
caatcctttg	ttgggttaac	tataaccgat	cagaaaatga	aaggaaaaaa	tttgacgtct	360
catcggatgt	cgaagtctcc	cgaagctgaa	attctcaacc	gagaaatgaa	atacgttgac	420
aaacagcata	ttgcatgttt	tcttgatcgc	aatccgcatt	gttttatagc	cgttcgggac	480

atactccgaa ggggggtcgag ctacgcccta cagcgactcg ggctacgccg tanagcgtag
gagctgcgct ctacggctct ttcgagctac gctgaaggc

540
579

(2) INFORMATION FOR SEQ ID NO:1327

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 680 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...680

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1327

tctaaaagga	tataccgatg	aagatagtaa	tatgcggaca	gctatgcagt	ctacccggcg	60
atttgactg	gagcggatc	gaagaaatg	gcgaatgctg	ttctacgaat	ataccggtcc	120
ggaggatttg	actctgcgtg	ctgctcgagct	gaaatagtgc	ttaccaacaa	gactcctgtg	180
actgcggccg	acatggaaa	atgccccacc	tacgttacat	cggactgatg	attacaggcc	240
ttaatattata	gatatggatg	ctgctcgtca	gcgtgggtatc	accataacga	acatccccac	300
tatagcacag	aatcagtagc	ccaaatggca	atctcgcac	tacgcacata	accatgccga	360
tcggagaact	ttcccggcag	gtgaaagatg	gtgctggcag	agcaattacg	aacaaatctc	420
tcgcaatact	tatcagatag	actgagcggg	ctgacgatgg	ctatcgtggg	acttggggca	480
ataggtacac	tgtagcggaa	atggcacgtg	gattcggcat	gaagattttg	gcacatacac	540
caaattctcca	atcgagttgc	cttcttatat	agaaaagtcc	cgatagccgg	agaagctttt	600
ctcttcgggc	tgatgtgctg	agtctgcatt	ggcgcgtaca	gtgcaaacc	aaagatggtt	660
cggctgatta	gctggccttg					680

(2) INFORMATION FOR SEQ ID NO:1328

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 625 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...625

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1328

tccagcttac	ggatttggtt	acccgatagt	tcaagcggtt	ctaaggacgg	agacgttcca	60
gaccctccag	cttacggatt	tggttatcca	aaagataagc	tccgctaacg	aggtgagacg	120
ttccagaccc	tctagcttac	tgatttggtt	tcggagagag	aaagttttgt	tagcgaggtg	180
agacatcca	ggcccttagt	ttactgatct	ggttacttct	tagacgaagc	tttggttaacg	240

aagtggacgt	tccagaccct	ctagcttact	gatttgggta	cccagacagat	aaagtccggt	300
aaggacgtga	gacgttccag	accctctagt	ttactgattt	ggtatccaaa	agataaagct	360
ccgctaacga	ggtgagacgt	tccagaccct	ctgcttactg	atttgggtat	cggagagaga	420
aagttttgtt	agcgaggtga	gctatccagg	ccctctagtt	tacggatttg	gttacttctt	480
agacgaagtt	tggttaacgaa	gtaagacggt	ctagaccctc	tagcttactg	atttgggttaa	540
cgatagatca	agctttttta	gagcaggaaa	atcaataagc	caagtcattct	ttctatctga	600
cattctcgca	agcaaagctc	aacga				625

(2) INFORMATION FOR SEQ ID NO:1329

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 594 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...594

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1329

aagagataaa	gcaaattgac	attgcttggt	accagcaaag	catcatacct	tcttcttcca	60
ttgctatacg	tacacgtct	tggcgtaact	ggagatctcc	ttcaaggctg	caggtgctaa	120
tttgatcata	atattttgag	attatttgat	taacgaaaca	aaagtactga	atagcatatt	180
cgcaagtcac	gaataacacg	atttatcagt	acagaaagct	gtcttatccg	attatagaaa	240
gtcttccgat	ttcccgattt	gcttcttcta	tttgcgaaaa	tcccgtgcaa	tagtccatac	300
agtgtgtcta	tgcatttgct	ctctttactc	ctgatgcact	ttgaatctac	tcgaatgagc	360
ctcaaaagcc	tgctccggcg	ataactctcc	aatccggcaa	aatttattcg	accgacgaag	420
ctgtgtagca	ccactcctcg	atctgccatg	atccgttgcc	aatcgctgta	tggaactatct	480
ccccttcaga	acaataccta	atcggtttcg	gcaatccggt	ggctatactc	gtctgtgtac	540
catggcatca	atacttaaca	atcgtgccac	ttaactctaa	ctatccagct	actc	594

(2) INFORMATION FOR SEQ ID NO:1330

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 726 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...726

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1330.

gcgatgcttt	cgaaagattg	cctcagccgg	agccgattcg	cagacggctg	tacgcgtcgg	60
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ctcctctcct	gttcatgagg	agcgaatggt	tcatcagcga	taggagattt	gtgcgtgggc	120
gacacgggtg	cacatgcgcg	cttcggatag	gaatcatcga	atccctcgaa	ggagaaggcg	180
ataatgccaa	ggctgagttt	cgtttcagca	ggtaggacgc	aaacgtctgt	tacttcggtt	240
tgccagctat	ccaaagtggg	aaaagattcg	atctgaacta	cagtgttctg	tactaaaaac	300
gtttaggaca	ctattgggtg	tacacgggtt	tgctctttga	ggtttattgc	ttcgtggggg	360
tatatttccc	aaaagcaatc	ctttcttctt	attgttcaaa	accatgagac	tgactcagcc	420
atccatgagg	tgctctaagt	taaagctaag	tgtcgaacgc	ccttgagggt	agttctgtgt	480
acaaagatcg	taaccgatat	cgaatcagtc	aataaccaa	gatgaatcat	ccgagtataa	540
acacgagggc	gatgttcac	ataaccggtg	ccccaaangt	ccagctccga	ttgtagagt	600
gagattctat	tcctaagagt	ccattaatag	catagggagg	acatcggtca	tgatgcgtcg	660
ctcctaattg	attgcaatcg	aggatagctc	cggtattggt	cttcatagat	ggactgagat	720
agataa						726

(2) INFORMATION FOR SEQ ID NO:1331

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 604 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...604

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1331

aggaagatat	ccgagcaatt	tcgatgccaa	ctcaaagggg	agcagcgagt	gactaccaga	60
tcatcatcac	gacagaagtg	cttgcgagg	gtatcaacta	caccgtgcc	acagcact	120
caactacgat	actccatgga	atgctaccgc	ctgatgcaac	gcacggggcg	agtcaaccgc	180
atcggtcccc	aagctcctgc	gtctatgtct	ataacttcat	gccgagtgc	gagggagatg	240
ccgagtcaat	ctcgtcaaga	aagcatatac	caagctacag	tctttccaca	cactttcggt	300
gaggatagtc	aaatcttcag	tgaagaagaa	gaggttgtac	acccgagctg	aaaaccaga	360
tcgagggcgc	ggagtctgcc	ctagagcaat	actctacgag	ctcaaacct	acaaggcgca	420
gcatccagaa	cgatacgact	aatcgctcgg	cagagcgaa	ggctagagtt	ggctgtatct	480
gagacagagg	gcaagctctc	ttcgtcgtcc	gcagcccaa	gtgccctgcg	atgttcgttg	540
ctatgatgcc	ctagaggata	agtgtcttat	gctctctgcc	ccacagatta	cgaggctttc	600
cgct						604